SOCIETY FOR ADVANCEMENT OF MANAGEMENT

Advanced Management

COMBINED WITH MODERN MANAGEMENT

UNIVERSITY OF MICHIGAN
AUG 21 1951
ENGINEERING LIBRARY

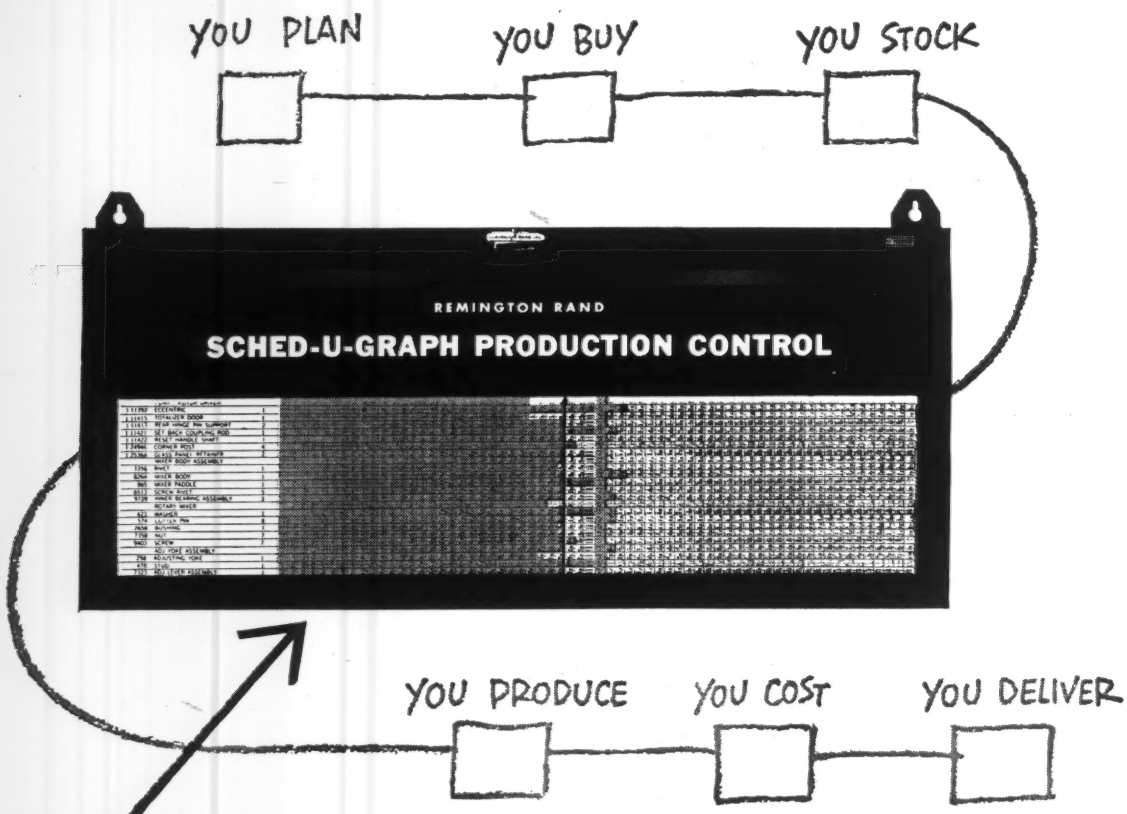
MANAGEMENT RELATIONS

IN THIS ISSUE

- A Management-Conscious Community
- The Automatic Phase of Industrial Feeding
- Management and the CMP
- Getting the Most From Reading
- Punched-Cards and Production Planning
- Wage Controls — A Summary

VOL. XVI NO. 2

AUGUST 1951



...but here's where you make-or-break your schedule

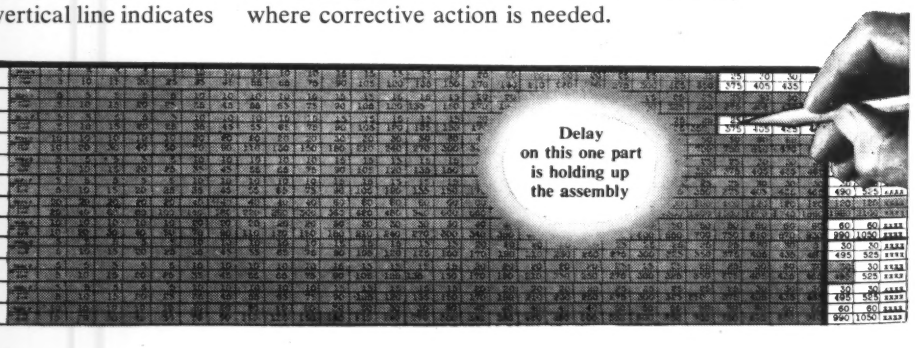
Just look below. You'll see why production men swear by Remington Rand Sched-U-Graph. This down-to-earth device *shows* you, graphically, how close each job is to schedule—*in time to take action if action is needed.*

Sched-U-Graph helped plants do "the impossible" in World War II. It is helping them again today . . . on all types of production and machine load problems. We'll rush without obligation our 32-page Sched-U-Graph Handbook (KD 341) if you'll just phone or write: Room 1280, 315 Fourth Ave., N.Y. 10. **Remington Rand Inc.**

here's how Sched-U-Graph Production Control works

Top line on this Sched-U-Graph represents a pump assembly — each line below, one component part. On each line is recorded, in advance, each day's production quota and the total to date. The sliding bar signals show work actually completed. The black vertical line indicates today's date, and shows how much work should be done. In this case, all components but one—the totalizer door — are on or ahead of schedule, but the whole assembly is delayed. You see the delinquent in a flash, and know exactly where corrective action is needed.

	PUMP—MOTOR DRIVEN	
1-11392	ECCENTRIC	1
1-11415	TOTALIZER DOOR	1
1-11413	REAR HINGE PIN SUPPORT	2
1-11421	SET-BACK COUPLING ROD	1
1-11422	RESET HANDLE SHAFT	1
1-24946	CORNER POST	4
1-25364	GLASS PANEL RETAINER	2
	MIXER BODY ASSEMBLY	
3356	RIVET	1
8264	MIXER BODY	1
865	MIXER PADDLE	1



Volume XVI Number 8
August, 1951

Editor-in-Chief—DILLARD E. BIRD

Editor and Business Manager
LEWIS T. BOLGER

Consulting Editors
ROBERT P. BRECHT JOHN F. MEE
DON F. COPELL HAROLD F. SMIDDY
RALPH M. BARNES

Advanced Management

NATIONAL OFFICERS: 1951-52

President — LEON J. DUNN, *Assistant to the Executive Vice President, Veeder-Root, Inc., Hartford, Connecticut*

Executive Vice President — EDWARD W. JOCHIM, *General Manager and Member of the Board of Directors, Personal Products Corporation, Chicago, Illinois.*

Secretary—HOWARD K. HYDE, *Department of Defense, Washington, D. C.*

Treasurer—BRUCE PAYNE, *President of Bruce Payne & Associates, Westport, Connecticut.*

Director-at-Large—DILLARD E. BIRD, *Management Counsel, Westfield, New Jersey*

Executive Director—C. A. SLOCUM

NATIONAL VICE PRESIDENTS

Vice President, Management Research and Development — HAROLD F. SMIDDY, *Vice President, Management Consultation Services Division, General Electric Company, New York*

Vice President, Student Chapter Operations and Development—RALPH L. JACOBS, *Management Consultant, Cincinnati, Ohio*

PAST PRESIDENTS

ORDWAY TEAD, *Editor of Social and Economic Books, Harper & Brothers, New York, New York* (1936-37)

WILLIAM H. GESELL, *Vice President, Lehn & Fink Products Corporation, Bloomfield, New Jersey* (1937-39)

MYRON H. CLARK, *Management Consultant, Boston, Massachusetts* (1939-41)

J. KEITH LOUDEN, *Vice President, York Corporation, York Pennsylvania* (1941-42)

PERCY S. BROWN, *Retired New Hampton, New Hampshire* (1942-44)

RAYMOND R. ZIMMERMAN, *Special Assistant, Economic Cooperation Administration, Washington, D. C.* (1944-46)

HAROLD B. MAYNARD, *President, Methods Engineering Council, Pittsburgh, Pennsylvania* (1946-47)

WILLIAM L. MCGRATH, *President, The Williamson Heater Company, Cincinnati, Ohio* (1947-48)

CHARLES C. JAMES, *Associate Counsellor, Stevenson, Jordan & Harrison, New York, New York* (1948-49)

DILLARD E. BIRD, *Management Counsel, Westfield, New Jersey* (1950-51)

CONTENTS

The Worcester Story 2
by John P. Cleaver, Manager, Management Consulting Services of the Worcester (Mass.) Chamber of Commerce and President, Worcester Chapter, Society for Advancement of Management

What Do You Mean By That Remark? 6
by Alvin Brown, Vice President, Johns-Manville Corporation, New York City

Robot Restaurants As Aids to Morale 9
by Charles H. Brinkmann, Vice President, Rowe Manufacturing Company, New York City

The Influence of Military Management 11
by John Robert Beishline, Colonel, General Staff Corps, United States Army

Control Records and the Controlled Materials Plan 14
by Allen N. Seares, Vice President and Director of General Sales and Services, Remington Rand Inc., New York

Magnetize, Mobilize and Energize 17
by Ralph E. Richman, Vice President, The National Underwriter Co., New York City

Society News 18

Mirrors Extend the Scope of Cameras 19
by Clifton A. Anderson, Professor of Industrial Engineering, The Pennsylvania State College and
George L. Thuering, Assistant Professor of Industrial Engineering, The Pennsylvania State College

Office-Plant Integration Brings Production Benefits 21
by Paul Schneider, Cost and Methods Supervisor, National Motor Bearing Co., Inc., Redwood City, California

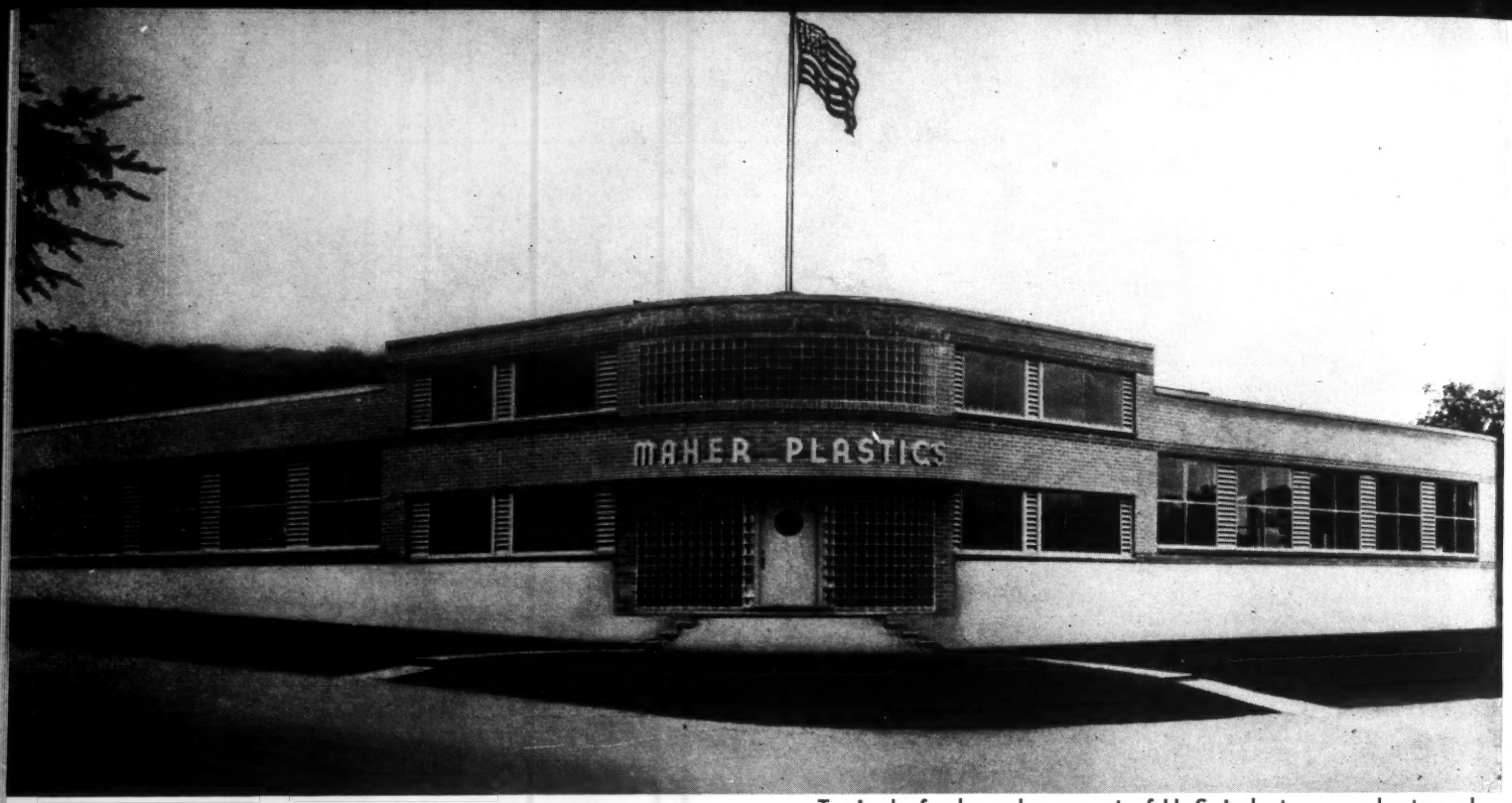
The Management Bookshelf 24

The Wage and Salary Regulations in Review 26
by Benjamin Werne, Attorney and Adjunct Professor, Industrial Relations, Graduate School of Business Administration, New York University, New York

Membership:—Detail of Industries and Functional Positions 28

DISCLAIMER: Every effort is made to verify the information published in ADVANCED MANAGEMENT. The opinions of the authors, however, are not necessarily the opinions of the Society and this periodical accepts no responsibility in connection with any liability which might develop as a result of articles published. All unsolicited articles, manuscripts, letters, and pictures sent to ADVANCED MANAGEMENT are sent at the owner's risk, and ADVANCED MANAGEMENT expressly repudiates any liability or responsibility for their safe custody or return.

ADVANCED MANAGEMENT, published monthly by Society for Advancement of Management, 84 William Street, New York 38, N. Y., is merged with MODERN MANAGEMENT, and is successor to The Society for the Advancement of Management Journal, the Bulletin of the Taylor Society and of The Society of Industrial Engineers. Re-entered as second-class matter, December 23, 1949, at the Post Office at New York, N. Y., under the Act of March 3, 1879.
Copyright, 1951, Society for Advancement of Management.
Subscription rate: $8.00 per year. Single copies: 75 cents (members); $1.00 (non-members). An index to ADVANCED MANAGEMENT is published annually, and the contents are also indexed in *Industrial Arts Index* which is available at Public Libraries. Notification of address changes must be given four weeks in advance.



Typical of a broad segment of U. S. industry are plants such as this. Worcester's Maher Plastics Company is small—but in its personnel and plant it is strong on scientific management.

COMMUNITY RELATIONS

The Worcester Story

By JOHN P. CLEAVER

Manager, Management Consulting Services of the
Worcester (Mass.) Chamber of Commerce,
and President, Worcester Chapter, Society for Advancement of Management

Community-conscious management isn't exactly new—but here is a management-conscious community and the story of what it is doing to help the industries within its borders solve their problems.

AMERICAN MANAGEMENT is becoming community-conscious. Industrial executives have learned that in addition to directing their company performance they must share in directing the overall community performance. Company performance is merely "part" of the economic "whole" of the community. Managers find it is good business to improve the whole economic environment.

Current trends in industrial development and plant location prove that manufacturers have increased their emphasis on community factors such as city government, schools, economic stability, community attitude toward industry, and the collective character of the people.

COMMUNITY CONSULTANTS

To Worcester, Mass., is credited the first community-wide management consulting program.

The motivating factors which caused the businessmen of Worcester to catapult their Chamber of Commerce into the field of industrial management are basic to any community. In 1945, a local Committee for Economic Development decided that Worcester's economic progress would be thwarted by a post-war recession. The best approach to offset resulting unemployment would be development of new and existing Worcester companies. This was a marked departure from normal industrial development practices of locating industries from other areas. How could Worcester develop these local companies? The essential ingredient that was lacking to most companies was specialized management ability. The average size of Worcester's 541 manufacturing companies was about 70 employees. A company of this size lacked depth in its sales (both domestic and foreign), production, personnel, and transportation departments. The committee not only recommended but sold a program to hire four consultants working at this community level under the auspices of the Worcester Chamber of Commerce. Fortunately, Worcester makes an outstanding laboratory for industrial management. Worcester's industrial picture is a mosaic of companies large and small, new and old, producing hard and soft goods within a 35-square-mile area. Starting a few years back, the four consultants concentrated on the new and small companies.

The Committee for Economic Development took the broad view that these

new and small companies were unable in many cases to pay even $25 a year to the Chamber of Commerce. The consultants were instructed to give services to any company whether or not it was a member of the Chamber of Commerce. The need is usually greatest where the financial rating is smallest.

Even though the consultants offered their services in sales, foreign trade, production, and transportation at no charge the program was not readily accepted. They found it difficult to win the confidence of the small plant manager, usually "a rugged individualist."

Executive Vice-President Harry R. McIntosh of Worcester County Trust Co. is Chairman of the Industrial Development Committee which supervises the Worcester Management Consulting Services.

RESISTANCE WAS HIGH

The consultants were confronted with a prevalent opinion that no outsider could provide a company with any competent help. One entrepreneur recently reasserted this fact to students of the Harvard Graduate School of Business Administration who made a study of the effectiveness of the program. The main reason for this attitude seems to be the belief that a consultant could not possibly be as familiar with a particular business as the owner. It is ironic that the manager in some cases cannot see his own inadequacy in the mirror of trouble he is having in handling all phases of his business. The first reaction to a "bush-beating" call of a consultant is often "Get me an order". The manager rarely expresses any desire to obtain advice as to how his sales approach and techniques might be improved.

But the consultants aggressively called two or three times on a company to sell themselves. Due to the concentration of plants within a relatively small area the men were able to make four or five plant calls a day. Once the management techniques suggested by the staff began to produce tangible dollar savings, acceptance of the program grew quickly. There are now 670 companies receiving approximately 6,000 services annually.

No consultant can enter the Worcester program without feeling a sense of humility and challenge. One production consultant, formerly a management engineering supervisor from Glenn L. Martin Co., had enjoyed a ratio of one staff member to 143 production employees. In the Worcester program the ratio is one to 6,000 production employees. Needless to say, the Worcester effort is just scratching the surface. It is obvious that there is tremendous need but it is difficult to develop community financing to support this need. For the most part, businessmen will always seek tangible goods and services for their hard-won dollar.

As the services have been increased, the cost per service has been reduced seventy per cent. Staff members are now familiar with industry and community problems and can act more quickly in solving them. Many solutions worked out the hard way for one company may be applied easily in another instance.

The consultants adhere to a strict code of ethics and maintain confidence regarding company information. They realize that their effectiveness and the acceptance of their ideas by the companies depend on keeping their analysis

An inventor with an idea to fill a need, and a lot of good management account for growth of concerns such as Wain-Roy Corp., Worcester manufacturers of hydraulic diggers, as shown below.

confidential even to the extent of not reporting company names to their directors.

CONSULTATION—AND SERVICE

A staff member strikes a balance between "consulting" and "service" operations. In many cases he is forced to effect his own recommendations due to either the absence of a specialist within a company or the inability of the management to spend any time at all on the problem due to the pressure of comprehensive duties. A conference with the management of a company regarding the approach, method, and installation of a job evaluation program would be an example of *consulting* operation. The selection and hiring of a manufacturer's representative in Rio de Janeiro would be a *service* operation. In general the staff help management in any way possible even to the extent of advising on government regulations, vacation practices, sources of supply, and selection of management personnel.

IS IT COMPETITION?

The Management Consulting Services of the Worcester Chamber of Commerce have received many inquiries during the past five and one half years from other communities. Invariably, this question is asked, "Have you received any objection from firms and individuals who render this type of service on a commercial basis?" This is a very logical question, for it would be seemingly difficult for any private consultant to compete with the free services rendered by the Worcester Chamber of Commerce. However, it has been conceded by the management consulting firms that it is uneconomical to serve manufacturing plants with less than 100 employees due to the limited potential for installations of management programs and the inability of these companies to pay the going fees for the profession.

Worcester's industries follow the national pattern. Ninety-seven per cent of the companies employ less than 100 people. Much has been written concerning the "problems of small business", but the records of the Worcester program reveal that personal attention, observation, and analysis by experienced management men can best produce positive results. Operating in the heart of the New England economy, the growth rate of which is lagging behind other sections of the country, Worcester's program has

nevertheless been accompanied by 166 new industries which have produced 4,264 new jobs and more than 10 millions more in annual payroll. Although the statistics are creditable, let's look inside some of the individual firms to see how this overall progress has been accomplished.

Case History Capsules on Worcester Consulting Service Results

WHAT THE WORCESTER PROGRAM seeks to accomplish is told in the accompanying article. Then there is the question of results. These are examples of individual action which have been augmented in many cases by what the staff calls "Tinker-to-Evers-to-Chance plays." In these cases, concerted action of all staff members have produced results, some of which include:

1) An incentive program installed by the Production Consultant doubled productivity of one company which employs 20 people.

2) The Foreign Trade Consultant made a trip to eleven South American countries with 50 assignments from Worcester manufacturers.

3) Foreign sales have been increased in several companies and developed from scratch for other companies by obtaining representatives.

4) The Transportation Consultant, through rate research, developed a reduction of $4,000 annually in transportation costs for several companies in the same line of business.

5) In one example, a combined report involving market analysis, labor rates and availability, production costs, and transportation costs induced a Swedish company to locate in Worcester rather than a Middle Western city.

6) A job evaluation program in a plant of 45 people is now being affected to eliminate inequities in wage payment among employees.

7) New manufacturing quarters provide a more efficient layout which helped increase employment of another plant from twelve to eighteen.

8) A new method aided a manufacturer in obtaining a large order which increased his employment by eight people.

9) Merchandising techniques suggested by the Sales Consultant helped double the sales and employment of a company which was fighting for survival.

10) At a bank's request the sales possibilities of one company were surveyed and a more intensive low-cost selling program was installed.

Worcester Management Consulting Services' staff specialists at work, left to right: Associate Consultant L. J. Dougall; Production Consultant R. H. Vanderkay (foreground); Sales Consultant W. A. Beltz (in light suit); and Transportation Consultant J. T. Floyd, Jr.

CONCERTED DEFENSE EFFORT

The continuing emphasis on production for national defense is seriously affecting the smaller industries today. If the company does not have defense orders, it cannot get steel or other materials in most cases. If the company does not have material, it cannot afford to keep its employees. When the company loses its seasoned employees in a tight labor market it stands little chance of getting them back. This chain reaction can do much to destroy the profit potential of a small industry. The Management Consulting Services of the Worcester Chamber of Commerce have aligned their efforts to try and help the small industries in this dilemma.

The sales consultant is concentrating on contacting government agencies and prime contractors. He obtains blueprints when possible and routes them to interested companies to which he is directed by the associate consultant who concentrates on plant facilities. He is also experienced in contacting purchasing officers regarding bids. The production consultant assists in preparing estimated costs and availability of material for the company. It is his job too to help the companies tool up and manufacture the product to specifications. The transportation consultant is experienced in obtaining shipping specifications and aids the company in shipping in the most economical and fastest way.

The staff organization has been realigned with the advent of industrial mobilization. Emphasis has been shifted from sales to production. Foreign trade activities have been combined with domestic sales and are handled by one sales consultant now. An associate consultant with a strong mechanical and production background has been hired to augment the staff. This provides more production know-how to satisfy the needs of Worcester companies.

MANAGEMENT GROUPS AID

The effectiveness of the consulting staff has been augmented greatly by affiliated management groups whose members serve willingly to amplify the analysis of individual problems. Groups directly affiliated with the program in Worcester are: The Worcester Chapter of the Society for Advancement of Management, the Worcester Sales Executives Club, Personnel Directors Council, Small Plants Advisory Council, and the Foreign Trade Council.

The manager and four consultants all participate in teaching management courses at the Worcester Junior College and lecture regularly at the Holy Cross Institute of Industrial Relations. This further improves community relations and closes the gap between business and educational institutions.

Community cooperation has increased Worcester business. This city which has been manufacturing products since 1793 now is operating at an all-time high in number of industries, employment and payroll dollars.

The directors of the Worcester industrial development program and the consultants do not claim credit for the various positive results. But they do feel that they have helped management produce a much better performance than would have been realized without the assistance of the staff.

THE COMMUNITY BENEFITS

By providing a management staff, the small companies receive comparable coverage to the larger companies. This in the long run helps the community economically, politically, and spiritually. Employment will be spread over more companies and thereby offset serious slumps in the local economy. The development of new and small companies offsets collectivism and gives status to the independent voter.

Since the program is financially supported by the larger businesses (stores, utilities, and service groups for the most part) this is convincing evidence that big business is not "bad". It demonstrates greatly that the Worcester business community recognizes its spiritual as well as its economic responsibilities. It gives "the little guy" a big break in the form of a management staff flexible enough to cope with his problems.

Worcester, in seeking the best approach to industrial development, has actually opened up a new frontier for the management engineering profession. Still comparatively young, this profession has a long way to go. One of the best places it could go is into every American community—to operate at the community-wide level.

What Do You Mean By That Remark?

By ALVIN BROWN

Vice President, Johns-Manville Corporation
New York City

A busy executive "operates" to get a "line" on "staff" and such stuff—and concludes that John Locke had something to which today's management men need a few new keys.

IT IS NOT extravagant to say that the lack of a common language is the greatest hindrance to making management the science it ought to be.

For our understanding of thought, we owe much to John Locke, 17th century English philosopher. Much of what he said was obvious, once it was said; but like many truths it was not obvious until said. Even today, writers too often forget that words have no natural, inherent meaning, but only those meanings that are given them by men. And they too often forget that it is not enough, in order to communicate thought, that the writer know what meanings he attaches to the words he uses; it is also necessary for the reader to know those meanings, else the attempt to communicate thought fails. Writings about management seem especially exposed to this forgetfulness.

What, for example, is the accepted distinction (if there is one) between management and organization? All will agree, no doubt, that managers must organize their enterprises, but, when they do so, are they employing the science of management or a collateral science of organization? Is organization, in other words, one of a group of sciences devoted to the conduct of human enterprise, to be known collectively as management; or has management a purpose and a technique that are more special in their scope?

Reading gives no answer—or, rather, both answers—to the question.

A recent article was devoted to "the integration of organization and management." It sought a "theory linking management and organization". In order to integrate or link two things, they must be different things. You cannot, in other words, integrate a part with its whole—it is already integrated; you can only integrate two different things into a whole. In the viewpoint of this article, then, organization and management are two different things.

"A ROSE IS A . . ."

An association devoted to management (not the Society for Advancement of Management) specifies seven "management functions into which the business organization is commonly divided". One is packaging, another insurance; but organization is not among them. Are the terms used synonymously? Would the expression mean the same if it read, "organization functions into which business management is commonly divided."? Or does it imply that management has functions which are provided for by a different agency called organization?

This is no mere matter of a rose by any other name. Doubtless, management would be as effective by any other name. But he who has once smelled a rose, and thereby acquired a taste for it, needs a name by which to inquire for it when he wants to renew his experience. And he who would inform himself about management needs a name so that he may direct his reading and his discussion. If he seeks knowledge of *management*, he will not want to find himself reading about *organization* (if that is a different thing). Nor will he want to miss reading about management because an article is labeled as *organization*. Nor will he want to discuss management with others if they think he is talking about organization. Reading and discussion are seldom so haphazard that they can afford to be indifferent to the subject matter.

To a considerable extent, accuracy of knowledge depends upon classification. The sciences in general would be an unassimilable welter were it not for classification. But this indefiniteness of name is only the beginning of confusion. It is worse when we try to detect the ideas for which more particular names are used.

THOSE MILITARY TERMS

"Line" and "staff" are terms of reasonably accurate meaning—in their military use. They are imported into industry, however, with very little attempt to define them. In their military use, *line* means the combat arm; *staff* means everything else. In industry, analogy fails. Except by the most unbridled invention, there is no combat arm in industry. If an analogy must be forced, however, then sales is the analogue of combat, because it is the culminating act of industry and because at this point industry is in competition. And, if this is so, then production is *staff*, just the same as supply is staff in military terminology.

Nevertheless, as it is ordinarily applied to industry, *line* does refer to production. The difficulty is to know what else it is applied to. Does it, for example, apply to sales? Production was once regarded as the very core of industry to which all other functions ministered, just as combat is regarded as the military core with all other functions ministering to it. Those were the days when "industrial engineering" had a purely manufacturing connotation, and when "industrial organization" meant organization of productive processes. Today, industry is not generally regarded

so narrowly; and doubtless the sales function is line. But what about purchasing? Often it is clearly classed as staff. Yet purchasing is one step in the industrial sequence as clearly as fabrication is another step. In purely merchandising enterprise, its position as part of the fundamental industrial process is scarcely open to question. Yet how often can one tell, when he sees the word "staff" used, whether it is meant to include purchasing? The same doubt applies to a number of other functions.

It is not the purpose of this article, of course, to try to solve these ambiguities. Its purpose is merely to show that they exist and that they need solution.

EVERYBODY AN OPERATOR?

Often, "line" is said or implied to mean the same as "operating". But here is another term of very doubtful meaning. Since by the dictionary it means to perform a work or labor, everybody in industry operates in the customary sense of the word. When synonymous with line, however, it must mean something different: staff, in other words, does not "operate". Does the personnel man *operate* when he employs personnel? Does the accountant *operate* when he records transactions? The more one reads, the less confidence one has in trying to answer such questions.

The word "administrative" sometimes has a similar particularized application to some vague area of administration. The dictionary says that he administers who manages affairs, and, in this sense, it is difficult to find anyone in a business enterprise who does not administer in some degree. Sometimes, however, the word is restricted to some class of functions so uncertain that no attempt can be made here to describe them. It is so, also, in the army; a judge advocate general once said that the word "administrative" defied definition, although anyone with experience in the army knew what it meant. I am not at all sure, however, that anyone with experience in the army would know what it means in industry—if it has any meaning at all apart from the use made by individuals to represent individual, undefined ideas.

REDHEADS AND RATIONAL BEINGS

To no word has more violence been done, perhaps, than to the word "functional". Organization consists in identifying parts and their functions. Function is an invariable corollary of an organizational part. A part exists solely because of its function. Thus, all organization may be said to be functional. Yet in a great deal of literature, the word *functional* is appropriated to certain kinds of parts — which is to say, to certain kinds of functions. Thus we have the spectacle of a descriptive term, applicable to the whole, being applied to some portion of the whole; as one might, if careless enough, mean only redheaded men when he spoke of rational beings.

Another word that writers use glibly in the vain expectation of being understood is "decentralization". Were they explicit enough to tell us what they would or would not decentralize, our hope of understanding might not be disappointed. There are several industrial features that can be decentralized. The physical location of activities can be. The degree of responsibility can be, with no necessary geographical implication. Indeed, some writers must be assumed to apply the word simply to delegation of responsibility as such, without emphasis upon degree. When, therefore, the word is used without qualification, one can only guess at its application.

WISH-WORDS OF BUSINESS

This, by the way, contributes to one of the more remarkable combinations of wish-words of organization. That is the expression, "decentralized operation with centralized control". Making what allowances we can for the meanings of operation and control, this is no form or style of organization: it is organization itself, pure and simple. Beyond organization itself, the intellectual content of the term is nil. It might have some special meaning if the degree of control were specified, but it never seems to be. Pretending to stand for some ideal of organization, it only betrays the illusion that words have an inherent value apart from any idea they may express.

OUT OF CONTROL

It would be easy, if the size of this article and the patience of the reader permitted, to go on to show what loose use is made of other words that are important to the language of management. In a recent article, the meaning of *policy* was explained away until it became a mere vague indication of objective, leaving full discretion to those who otherwise would have been governed by a policy. Sometimes *planning* is used in so broad a sense that it seems to acquire a substance of its own quite apart from particular things to be planned. The word *communication* has, in some uses, undergone an apotheosis that quite escapes this writer, but leaves him vaguely wondering whether, instead of stepping across the hall to talk to an associate, he should write him a letter. Often it is impossible to tell whether *control* means an exercise of restraint or a standard of comparison—or perhaps something else.

Well, these are the disabilities of language that Locke made so clear; or,

S.A.M. Glossary Project

IN THE LIGHT OF recommendations made in the annual report of S.A.M. Vice President Harold F. Smiddy's Management Research and Development Division, the accompanying article is viewed by the editors as particularly timely.

Management's search for a present-day Webster to define words or terms in wide usage is being championed by the Society for Advancement of Management. Words that to one person seem perfectly obvious as to meaning have a way of meaning something entirely different to another, depending on the area, or for various other reasons.

A list of Management terms to which universal definitions are being sought is a part of the Management Research and Developments Division's SAM project entitled "Glossary of Terms Used in Methods, Time Study and Wage Incentives".

Chapters are going to be asked to add other terms—especially those used in local or regional areas—in order to make the project as complete as possible.

rather, they reflect the failure of language as a medium of intelligence when the speaker and the hearer do not give the same meanings to words.

WHAT CAN BE DONE?

There are, of course, two accepted means of forestalling this failure. (1) A writer may stipulate a meaning for the purpose of his writing. In that case, he makes proper provision against being misunderstood. (2) If not stipulated, a word is presumed to be used in its dictionary sense. With this goes the obligation, naturally, of stipulating which dictionary sense if there is more than one.

But these resources are not too satisfactory. It is inconvenient to be defining one's terms every time one uses them; and, besides, this right, freely indulged, would invite a confusion of tongues. Nor can the definitions given by the dictionary be called serviceable; if they were, we probably should not be in our present predicament. The dictionary meanings are often too general for the purposes of a particular science. Thus, organization is defined as the act of arranging in interdependent parts, each having a special function with relation to the whole; but when the word is applied to human enterprise we need to substitute something for the inanimate "part" and we need to specify the relations as among the parts rather than with a nominal "whole". This is true of any specialized branch of knowledge: for its purposes, it must give more specialized meanings to the words upon which it depends for the communication of ideas.

No one who reads the current literature of management (or is it organization or administration?) can escape the conviction that his understanding would be greater if there were a common language. Doubtless, for some purposes, such insistence upon precision in the use of language could be called pedantic. But the fitness of that stricture depends upon the importance of the subject. If a subject is important, our need of understanding is proportionate. Our ability to understand is proportionate to the clarity of language in which the subject is expressed. To say that precise language is vain is to say that understanding is vain. Shall we say that of management?

Let us conclude, then, that one of the most important ways in which our knowledge of management could be advanced would be to standardize a vocabulary of management. If management is an inclusive term, then the vocabulary should include those terms used by constituent sciences: organization, personnel, administration, leadership—whatever they be. If some of these subjects be deemed outside the scope of management, then the vocabulary should deal with management and its related sciences. Just what relationship is to be conceived as existing among these subjects is not nearly so important as having a settled relationship.

WHO CAN DO IT?

It is unlikely that this feat could be the work of any one man. The writings on these subjects show too much individuality to hope that their authors could be persuaded by any one other man. A dictionary of management, to be accepted, would have to be a fairly broad consensus. Even then, of course, it would not be accepted by everyone; and even then, of course, it could scarcely be perfect. If, however, the work were of such integrity as to persuade a substantial number, at least the trend would be reversed: instead of progressive deterioration in the language, we might expect the tide to run toward consistency.

The purpose, it is plain enough, would not be achieved by one stroke. After such a beginning had been made, it would still be necessary to deal with accretions and modifications in the same orderly manner. It would be necessary, in other words, while keeping the language fresh and vital, to curb the natural tendencies toward divergence.

How is such a consensus to be procured? The obvious answer is that no one could better perform this service to management than a society for the advancement of management. Yet there is one answer better still: The undertaking would be best concerted by all the groups devoted to study and improvement of management. If that should not prove practicable, however, the first answer will do. It is a work for those who, by their association, show that they have the interests of management at heart.

New Studies on Left-, Right-Hand Motion

NEW FINDINGS OF RESEARCH on left- and right-hand motion time studies, which may be resolved mathematically for practical application to industrial timestudy, were the subjects of a paper delivered June 15 in Cleveland to the Second Annual Convention of the American Institute of Industrial Engineers by Dickey Dyer, member of the Society for Advancement of Management and director of new business activities and manager of the headquarters office of the Work-Factor Co., Cleveland management consultants.

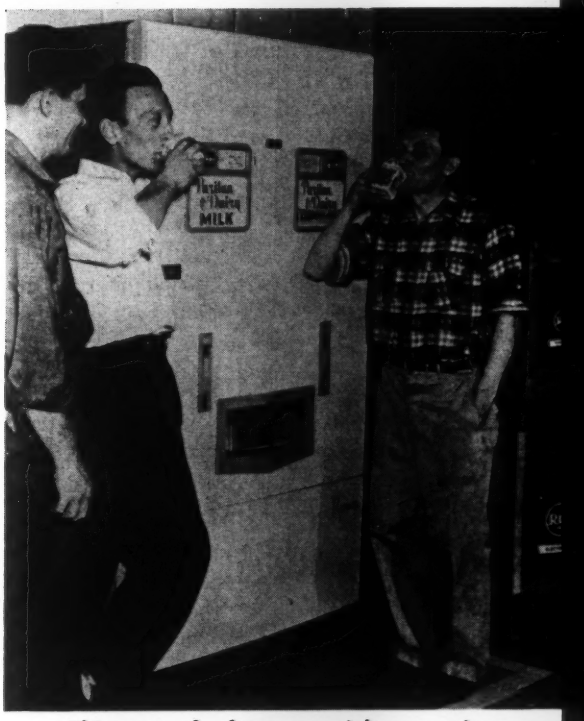
"The research, substantiated by studies at the Johns Hopkins University and the University of Wisconsin," Dyer revealed, "shows that the time for right-hand motions is essentially the same as for left-hand motions. It also shows that, contrary to common belief, individual motion times are not generally different when performed by one hand with the other idle or when performed with both hands in motion. However when elements of work, such as complex grasp, pre-positions and assemblies are performed simultaneously, generally there is an increase in time."

He said that a number of factors contribute to this increase in time and that they could be easily isolated and accounted for as: actual changes in motion pattern and distance; increases in fumbles and separating motions when grasping and in alignments during assembly; and when physical and visual limitations prohibit some motions being performed simultaneously but require that they be done in sequence.

"Another significant factor when performing work simultaneously," Dyer continued, "is the time lost in keeping right and left hand motion patterns in phase. When work is exactly the same in every cycle there is little loss but when the work involves motions that occur on a random, average or percentage basis, the time lost is significant."

'Robot Restaurants' as Aids to Morale

By CHARLES H. BRINKMANN
Vice President, Rowe Manufacturing Company
New York City



This sort of afternoon pick-me-up is a no-cost, no-headache investment.

The automatic phase of industrial feeding is developing rapidly as the defense emergency creates new problems and as studies indicate that food and drink vending units are popular and have an anti-fatigue value.

UNDER THE IMPACT of peak production demanded by our current defense economy, managements have been busily re-gearing their physical plants to cope with revamped needs. And while materials and methods have occupied most of the limelight, the problem of manpower is rapidly gaining equal recognition. For as the industrial pattern of World War II begins to repeat itself, once again the labor market has become competitive.

Under such circumstances, employee conveniences become a management asset, and the problem of food facilities gains prime importance. Over the past decade, most plant administrations have come to recognize that a well-fed worker is generally a better worker. On-the-job food service has been credited with improving morale, promoting employee health (and thereby decreasing absenteeism), and tending to increase output.

Since food service programs obviously vary from plant to plant, they must be developed locally to meet individual needs. In general, however, they aim to conveniently provide quality food at reasonable prices. Until quite recently, on-the-job feeding media were largely manual, with dining rooms, cafeterias, snack bars, and mobile carts utilized individually and in combination to varying degrees. Modern developments in automatic merchandising techniques, however, have ushered in a whole new era in industrial catering. Coin-operated vending machines, utilized either to individually provide mid-shift snacks, or in a group as "automatic lunchboxes" that furnish a full-fledged bill-of-fare ranging from sandwiches and pastry to hot and cold beverages, are meeting current industrial requirements.[1]

ROUND-THE-CLOCK SERVICE

The small factory, which has generally found manual food facilities either impractical or uneconomical, is utilizing self-supporting vendors as an answer to employee meal-time needs. At larger plants, the "robot restaurant" supplements over-the-counter facilities, making snacks conveniently available at *all* hours to provide a refreshing "pick-up" and offset mid-shift fatigue. And, as more and more establishments begin to function on a stepped-up work schedule, the coin-operated cafeteria is ideally suited to provide round-the-clock food service for odd shifts.

A MORALE BUILDER

Some idea of the potential value of vendors can be gathered from this comment on a survey of the use of milk machines (in some 15 industrial plants ranging in size from 40 to 2,400 workers) made by the New York State Department of Labor, Division of Industrial Hygiene and Safety Standards:

> "All plants felt that the workers interpreted the availability of milk in the plant as an indication of interest on the part of management in their health and welfare; and worker morale and labor relations were greatly improved thereby. One plant expressed the conviction that their milk dispensing machine was an important factor in their recent contract negotiations and that it actually contributed to preventing a strike." [2]

Typical of the smaller sites utilizing automatic merchandisers to provide on-

[1] Yohalem, A. E. "Automatic Lunchbox," *Vend*, Sept., 1950.

[2] Mayers, M. R. and Brenner, F. "Milk Dispensers for Industrial Plants," *Monthly Review*, Division of Industrial Hygiene and Safety Standards, N. Y. State Dept. of Labor, Oct., 1950.

the-job meal service for its employees is the Ford Motor Co. export office at the Harborside Center in Jersey City, N. J. With the eating places in this dockside terminal quite busy during the lunch hour, Ford decided that its employees could be better served through their own dining facilities. However, since this organization had less than 400 workers and only a limited amount of floor space, over-the-counter service was not only uneconomical but impractical to fill the bill, a coin-operated cafeteria was installed, with vending machines serving sandwiches, milk, ice cream, pastry, coffee, etc. Ford employees not only became regular patrons of the machines at mealtime but found the vendors a handy source of energy-building snacks during the day.

BENEFITS ENUMERATED

At the huge Frankford Arsenal in Philadelphia, where the Army Ordinance Corps is engaged in armament work, "automatic lunchboxes" supplement the cafeteria and snack bars that serve thousands of civilian workers dispersed over a wide area. Sandwich, cake, milk, and ice cream vendors are on duty at strategic points around this sprawling installation to meet the needs of employees in outlying buildings and to provide food service when the manual outlets close.

To management seeking either full-scale or snack food service, automatic merchandising offers the following advantages:

Economic. Since the equipment is owned and operated by a vending machine firm on a concession basis, no capital outlay is required by the plant. Vendors make sales *without* attendants, and management does not have to provide any operating personnel.

Time-Saving. Vending machines are geared to split-second operation at the drop of a coin, and they can actually serve workers much faster than food can be dispensed manually over-the-counter.

Space-Saving. Occupying a minimum amount of factory floor space, compact coin machines eliminate the need for food preparation areas, kitchen facilities, etc. Machines are stocked by the operating firm, which brings in the products.

Flexible. The vendor set-up can be expanded or contracted through the addition or removal of machines to meet fluctuating needs, and equipment can be readily moved from one working area to another to follow shifts in factory population.

WATCH THE MENUS

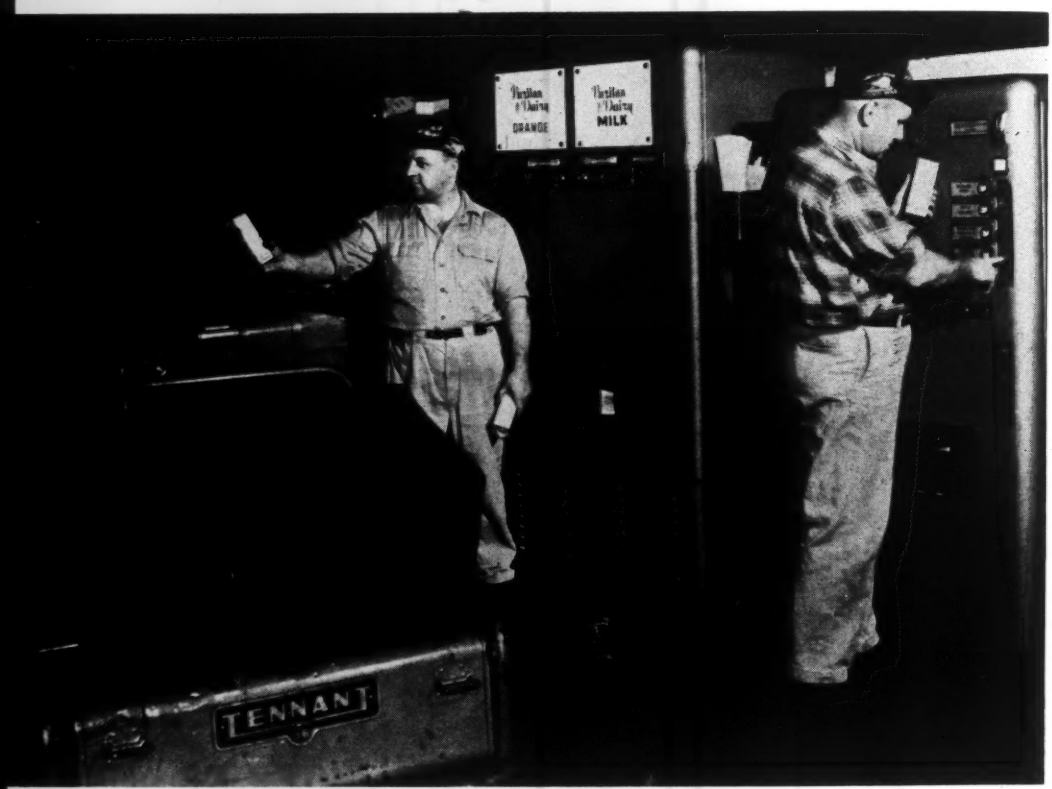
As in the case of any food service program, the success of a factory vending machine operation will depend on such considerations as the number and income-level of the workers patronizing the vendors; availability of other food facilities; type of labor workers perform; hours of plant operation; length of "break" or rest periods, etc. Supervisory attention should be paid to the menus featured in coin-operated cafeterias to insure that the bill-of-fare is palate-pleasing and meets the employees' needs. In Pittsburgh steel mills, for example, where workers require a large liquid intake, vendors feature full pints of milk and chocolate milk, but in lighter industry, where women predominate, the smaller-sized half-pint is in vogue.

PICKING LOCATIONS

While the scope of an automatic merchandising program and the amount of available floor space will govern the number of machines to be employed, types should be utilized which provide workers with a variety of nutritive products. Importance is also attached to the location of the machines, which should be placed in clean, safe areas where they are readily accessible to a maximum number of employees.

Experience has shown that workers actually appreciate management's interest in providing meal service and snacks via vendors, while their improved health and decreased afternoon fatigue results in better dispositions and increased output. Evaluated in this light, automatic food facilities are coming to be regarded as a no-cost investment in labor relations that pays off.

Automatic vending units are supplementing the company restaurant in some instances; in others they provide the sole answer to on-the-job food and refreshments.



The Influence of Military Management

By JOHN ROBERT BEISHLINE

Colonel, General Staff Corps
United States Army

A study of the history and development — organization, staffing, functions—points up the extent to which industry continues to be influenced by the structures and techniques of the armed forces.

IN THE PAST YEARS the United States had little cause for worry as to the depletion of its economic and manpower potential. In those days America had strong friends within the family of nations to aid in maintaining democracy. World War II proved to be a great drain on the resources of the nation from which it has not yet entirely recovered. Today the free peoples of the world look to the United States not only for ideological guidance in the fight to preserve our way of life, but also for the economic material aid which is essential to the re-establishment of their own ailing economies. This aid will not only cost the United States billions of dollars annually, but will require that each agency of the government operate with a maximum of efficiency.

In the current troubled state of the world, the United States must maintain a strong military establishment. At the same time, the needs of this force cannot require such a large proportion of the nation's resources as to disturb seriously the economic structure. Congress and the people of the nation have made provision for the necessary armed requirements. The effective and efficient utilization of manpower, money, and material by the armed forces is no longer only desirable; it has become an absolute necessity. It can be assumed that the expenditure of each military dollar will be subject to the closest scrutiny to the end that maximum use be made of our national resources. Good military organization and management will ensure that the military establishment operates with effectiveness and efficiency.

Down through history, principles of military organization and management have served as guideposts to many of the current principles of industrial organization and management. As the United States economy moved forward and attained its current position of world industrial leadership, industrial management moved ahead in congruity. Consequently, modern principles of scientific industrial management are in a highly advanced state and have much application to military organization and management. This does not mean that these principles should be adopted by the military in toto. It simply means that these principles should be utilized to the maximum extent possible wherever and whenever their employment will contribute to the attainment of the objectives of the military establishment.

WHERE SCIENCE IS APPLIED

It is emphasized that there are many principles of organization and management currently used by the military services, which are unique to them and which are just as effective today as they were when first adopted. Their military use will continue until they are shown to be inadequate. The ideal philosophy of military management is one that fuses the sound principles of current military management with those of a similar category that can be adapted from business and industry.

Military management is the vital force which activates, directs, and controls the military organization to the end that its objectives are accomplished. The scientific method of management produces the most effective results. The organic or basic functions of military management to which the scientific method must be applied are planning, organizing, commanding, and controlling. These functions completely cover all the necessary management activities incident to the completion of a military project. It is not possible to omit one of them and reach a satisfactory completion.

Military planning is the process of selecting in advance the best line of action to accomplish an objective. The function of forecasting is thus an important part of planning. Planning involves the exercise of creative and reflective thinking and determines what is to be accomplished, when it is to be accomplished, where it is to be accomplished, how it is to be accomplished, who is to be responsible, and why it is to be accomplished.

ACTIVATION OF PLANNING

Military organizing is the process of supplying the procedures, factors, and organization structure necessary to place the agreed plan into execution. It develops and maintains proper relationships between functions, physical factors, and personnel for the accomplishment of a desired objective. Organizing also establishes the relationship of authority, responsibility, and accountability necessary to the execution of the plan, and fixes the procedures necessary for proper coordination. In short, it provides everything necessary to carry the plan to successful conclusion.

Military commanding is defined as the activation of the plan developed by the function of planning and for which the requisite conditions for execution have been established by the functions of organizing. It is, therefore, the force which starts the action of the organization and guides its efforts toward the

accomplishment of the objectives. Coordination is an integral part of the commanding function and serves to bring harmony and equilibrium to the organization.

Military controlling is the function of determining the relationship between planned and actual results, and of taking such action as is necessary and authorized to rectify any disparities with the detailed plan of action. The principal functions of controlling are supervision, comparison, and corrective action. Supervision is the activity of assuring that the actual operation is proceeding according to the detailed plan. Comparison is the function of comparing actual results of an operation with planned performance to determine the amount of agreement. Corrective action is that action which must be taken to bring deviated actual performance into coincidence with planned performance.

LINE AND STAFF

There are certain basic factors which are common to all situations where military management is employed. These factors are ultimate authority, military objectives, military ethics and standards of conduct, executive leadership, military policies, military functions, physical and personnel factors, organization structure, morale, and military procedures. Good military management with respect to the proper application of these factors in military operations results in the effective accomplishment of military objectives.

The "line and staff" type of organization structure predominates in the armed forces. This type of structure embodies most of the advantages of the "line" type of organization while at the same time overcoming most of its disadvantages. Specialization is encouraged through the use of the staff. A staff function can be appended to a line function at any command level. The organization enjoys greater flexibility with such a structure because the staff is able to absorb new functions or change old without undue disturbance to the line organization.

The military line consists of the hierarchy of objectives, functions, and leadership that leads directly from top command to those units of the military service which come into contact with the enemy and actually perform the combat missions. In the military forces, as well as in industry, success or failure of the entire organization depends upon the line. If the enemy is to be defeated it must come through the performance of the line. The only reason for the existence of the administrative and technical services, the staff, or any other military organizational element is to support the line. Military command is exercised basically through the line organization. The principle of unity of command is carefully followed in a straight flow of authority which makes each commander accountable for his subordinate units only to one superior authority.

Modern warfare with its highly specialized and complex weapons has introduced a trend toward specialization in the military line. In the past the problem was that of welding the infantry, cavalry, and artillery into an efficient team to be used against the enemy. In modern warfare it is one of welding the Army, Navy, and Air Force, together with their highly specialized weapons, into a team which can be used with maximum effectiveness against the enemy.

The military policy of maximum decentralization of responsibility and authority applies with full force to the line organization. This has the definite advantage of training and developing line military executives for higher command. One of the missions of the armed forces is to ensure an adequate supply of such individuals so that they may form the command nucleus for rapid expansion in time of war. This policy of decentralization has the added advantage of freeing top echelon thought for forecasting and planning for the future.

THE PLACE OF POLICY

A military function is any activity of a military organization which is necessary for the accomplishment of its objectives and can be clearly set apart from other activities. Functions, therefore, classify organizational action. Every activity in which it is necessary for a military organization to engage in the attainment of its objectives falls into one or another of its functions. Military policy is the linking element which binds together functions and objectives.

Military executives perform the organic functions of military management to guide the military establishment in the performance of certain major essential functions that are vital to its existence. These latter functions are the organic military functions. Thus every military organization has two fundamental kinds of organic functions: management functions and military functions. The organic military functions of the national military establishment are land operations, sea operations, and air operations. Hence each of the three elements in which it is possible to conduct combat operations has been differentiated. Each has problems of operation which are unique to itself. As long as the Department of Defense remains in existence and has for its primary objectives the destruction of the enemy in time of war, it will be necessary to maintain operating forces for land, sea, and air operations.

SIMILARITY TO BUSINESS

Because the Department of Defense is of such great size and global coverage, each of its three departments of the Army, Navy, and Air Force (corresponding to the organic military functions of land, sea, and air operations) has organic military functions. These military functions are common to each. They are supply and procurement, training, and operations. Supply and procurement is the function of supplying the organization with the ordnance, material, and equipment essential to the accomplishment of its mission. Training is the function charged with developing and training the individual members of the organization. Operations is the function of combat unit training and operations in the organization. The operation of these functions unites the personnel factor (organic function of training) with the physical factor (organic function of supply and procurement) into military units which destroy the enemy forces on the field of battle (organic function of operations).

The military staff is quite similar to the business or industrial staff both as to organization and function. A military staff consists of those officers who assist the commander in his exercise of command. The performance of such a broad assignment requires an intimate knowledge of the commander's policies as well as the organization which he commands.

The staff of a military unit the size of a division or larger may be subdivided into two main groupings: a general staff group and a special staff group. The general staff group is composed of offi-

cers of the general staff corps and is organized so as to include all functions of command. The special staff group is composed of the chiefs of sections representing specialized activities of the command.

The general staff is part of the command element in any military organization. It has no command authority and performs its duties within the authority of the commander. It furthers command by gathering and arranging information for the commander. Contrary to the belief in some quarters the General Staff does not constitute a corps of permanently assigned officers. General Staff officers are carefully selected from among the best officers having a broad background in both field and staff work. Assignment to this corps is normally for a three or four year tour after which officers are rotated to field duties. The general staff keeps all units and agencies informed of the specific role which they are to play in the general plan. Necessary orders and instructions which are in harmony with the plans are prepared for the approval of the commander. This involves the coordination of the staff work of the special staff. When the orders and instructions have been approved, the general staff ensures prompt transmittal to all affected units and agencies. Finally, the necessary supervision of execution is provided by the general staff to ensure compliance with the wishes of the commander.

It is emphasized that the general staff is not an agency for operations. It is a staff planning and supervising agency. It acts only through the authority of others and, therefore, is an administrative body and not an executive body. If there were no general staff in military organization the result would be a large number of functionalized divisions, each performing its work as best it could, but with no over-all agency, except the commander, ensuring adequate coordination and effectiveness according to plans.

SPECIALIZATION TRENDS

Current military management must meet the problems raised by the trend toward specialization and increased complexities of operations. New developments in the fields of transportation and communication have reduced military time and space factors tremendously. This has greatly facilitated the use of task forces composed of elements from each of the three military services. Task force organization develops its own problems of organization. Thorough and complete unification of the three services doubtless provides solution for many of these problems.

The philosophy of military management which was developed in this article can be used as a guide in the solution of military organization and management problems. The principles contained therein have been determined scientifically and offer a sound basis for thought and action. Whether the philosophy is accepted in toto is relatively unimportant. If it generates thinking and research, with resultant progress, it will have served its purpose. It is noteworthy in this connection that major military reorganization was required at the beginning of both World Wars. Fortunately, these reorganizations were sound and workable. Reorganization should not be conducted in time of war. It is expedient that any necessary reorganization be completed and thoroughly tested prior to the outbreak of war. To date great progress has been made, but the road stretches far into the future.

MANAGEMENT BOOKS *Recently Received*

Effects of Taxation-Executive Compensation and Retirement Plans, by CHALLIS A. HALL, JR., published by Harvard Business School, Boston Mass. 365 pages, $4.25.

Effects of Taxation on Executives, by THOMAS H. SANDERS, published by Harvard Business School, Boston Mass. 229 pages, $3.25.

Income Analysis, by RICHARD V. CLEMENCE, Ph.D., published by Addison-Wesley Press, Inc., Cambridge, Mass. 182 pages, $2.50.

The Impact of the Union, edited by DAVID MCCORD WRIGHT, published by Harcourt, Brace & Co., New York City. 405 pages, $4.00.

Psychological Analysis of Economic Behavior, by GEORGE KATONA, published by McGraw-Hill Book Co., New York City. 347 pages, $5.00.

Public Relations and American Democracy, by J. A. R. PIMLOTT, published by Princeton University Press, Princeton, N. J. 265 pages, $4.00.

Of Societies and Men, by CARYL P. HASKINS, published by W. W. Norton & Co., Inc., New York City. 282 pages, $4.50.

Capital Budgeting, by JOEL DEAN, published by Columbia University Press, New York City. 174 pages, $5.00.

Production Forecasting, Planning, and Control, by E. H. MACNIECE, published by John Wiley & Sons, New York City. 305 pages, $5.50.

Groups, Leadership and Men, by PROF. HAROLD GUETZKOW, published by Rutgers University Press, New Brunswick, N. J. 293 pages, $5.00.

Materials Handling Case Book, by LEWIS K. URQUHART and CARROLL W. BOYCE, published by McGraw-Hill Book Co., New York City. 440 pages, $8.00.

Management of Industry Inventory, by BENJAMIN MELNITSKY, published by Conover-Mast Publications, Inc., New York City. 287 pages, $4.25.

Industrial Relations Yearbook—1951, edited by BERNARD SELTZER, published by the Dartnell Corporation, Chicago 40, Ill.

Principles of Industrial Management, by L. P. ALFORD and H. RUSSELL BEATTY, published by Ronald Press Co., New York City. 779 pages, $6.00.

Labor and Industrial Relations, by RICHARD A. LESTER, published by the Macmillan Company, New York City. 412 pages, $4.25.

Plant Layout & Development, by SHUBIN & MADEHEIM, published by Prentice-Hall, Inc., New York City. 412 pages, $7.35.

Control Records and the Controlled Materials Plan

By ALLEN N. SEARES

Vice President and Director of General Sales and Services
Remington Rand Inc., New York

An executive of one of the country's leading corporations discusses means by which manufacturers can handle orders and other records with maximum efficiency and a minimum of effort.

FOR THE MANUFACTURER engaged in operations which bring him under the Controlled Materials Plan prospects for the final months of 1951 point to two "firsts" for his careful attention:

One of these is the need of setting up realistic and precise production schedules for the next six or twelve months; perhaps longer;

The other is the necessity of making highly accurate *estimates* of the controlled materials required for those production schedules.

When they were preparing their allotment applications for the third quarter, most management men realized that the whole operation was something of a "dry run" to set up procedures and to enable the NPA to get a line on the approximate amount of various forms and shapes of controlled materials to be required for military contracts and for the manufacture of Class B products on the essential civilian products list.

For the fourth quarter, however, it is a different story. Procurement then will depend, to a large extent, on the use of priorities established by the CMP numbers. At this writing, orders with "DO" Ratings still have equal standing with CMP Ratings, and, for the most part, manufacturers are receiving deliveries of the CMP items of steel, copper and aluminum.

NPA action during recent weeks would seem to presage a tightening on many types of supplies involving controlled materials during the final quarter of '51. And it seems very clear that CMP allotments will be required to insure delivery of many types and shapes of such materials in time to permit meeting of production schedules during the coming months.

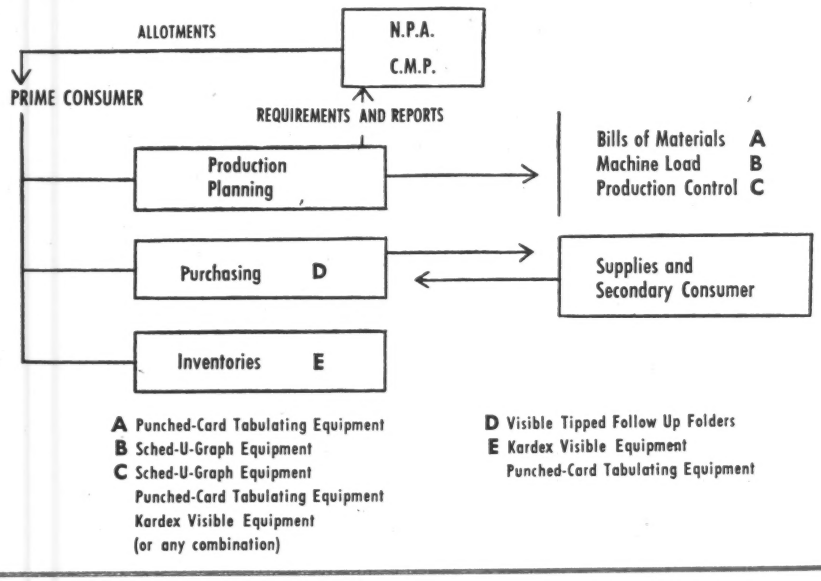
WHY RECORDS ARE IMPORTANT

The insuring of production by prime consumers of end products in accordance with established production schedules is the basic aim of CMP. This means that secondary consumers must supply parts and components, and that the raw materials producers must effect deliveries to prime and secondary consumers in time to assure an uninterrupted supply of parts and assemblies.

This, of course, means that production scheduling records assume added significance. Because all parts and materials must be procured or produced on time, machine loads have to be scheduled accurately in order that delay in one operation will not upset schedules and

Chart 1.

WHERE OFFICE EQUIPMENT IS USED EFFECTIVELY UNDER CMP



Check-List for Manufacturers Operating Under Controlled Materials Plan

____Is our business operating smoothly under CMP Regulations?

____Have any of our CMP 4-A or CMP 4-B Application for Allotment Forms been returned for correction or additional information by the NPA?

____Have CMP allotments received been less than requested, and if so did we encounter any difficulty in adjusting our proposed production schedules and ascertaining what orders should be placed for controlled materials in line with reduced allotments?

____Have we set up adequate allotment accounting records as required under Section 23?

____Have we set up record procedures to insure that all allotments extended to suppliers or to secondary customers are properly posted and deducted from allotments?

____Do our inventory records for each item clearly reflect the status of purchase orders placed; deliveries received, and current inventory against scheduled requirements for each item?

____Are we certain that deliveries of controlled materials are scheduled according to CMP Regulation 2?

____Have we established controls to insure that supplies of any items are not delivered if inventory is in excess of allowable limits under Regulation 2?

____Have we established procedures so that any required change in our production schedule during the Third Quarter may be properly translated against allotments of controlled materials (so that supplemental Applications for Allotments may be filed with NPA, or so that outstanding orders may be cancelled for unrequired items)?

____Have we established records to insure the placing far enough in advance of Purchase Orders for all required items of controlled materials so as to be sure of delivery in the Fourth Quarter?

____Are we sure that our applications for material allotments for the Fourth Quarter are sufficient to cover these orders and to insure an extension of a CMP priority rating that will assure delivery in time to meet production schedules?

____Have we established a Detailed Bill of Materials on all items to be produced in such form as to permit us to reproduce a listing of the items on each Bill of Material if required by a Prime Consumer or by NPA?

____Are we encountering any difficulty in securing delivery of orders placed for controlled materials owing to the fact CMP allotment numbers were not extended to our suppliers?

____Are deliveries of Class A items from any of our secondary consumers being delayed because they did not receive our CMP allotment extensions in time to secure delivery from material producers?

Current experiences of many manufacturers has undoubtedly impressed them with the need for up-to-the-minute and accurate records covering all phases of the Controlled Materials Plan. With operations certain to be extended under CMP into 1952 and with materials likely to become more difficult to obtain, the availability of complete records becomes increasingly significant.

There are indications that in the months to come the procedures which have served many companies will no longer be effective. Many have been compiling their anticipated production schedules and materials requirements on some tall and fancy guesswork. Then too, orders for many items of steel, copper and aluminum for delivery during the Third Quarter had been placed well ahead, and most producers were able to absorb all allotments received and confirm delivery.

For the balance of 1951 and for the early months of '52 there are many reasons apparent why proposed production schedules should be made on a positive basis; that is, on the probable or known requirements of the manufacturer's customers, whether military or civilian. Those who have orders already on the books for delivery for many months in advance can predicate their scheduling on a firm basis by summarizing the requirements according to actual scheduled delivery dates.

ACCENTUATE THE POSITIVE

It is also important that production requirements should be balanced against capacity in order that all items may be produced in accordance with delivery schedules. Under CMP regulations the manufacturer has a clear obligation to his customer to advise him without delay if it develops there may be delays to meet his requirements.

Where firm orders for deliveries in the future are not currently available, the records should be in such shape that past orders can be readily summarized to provide a positive basis for proposed schedules. Too, the records should be so set up as to allow for adjustment of these schedules on a short range basis to match with actual orders received.

Such records should be complete in every detail, so that amendments in schedules may be immediately reflected in requirements for materials and parts and so that orders on suppliers may, in turn, be amended in time to make certain the delivery of required items so that there may be full and uninterrupted production and delivery of orders.

Time lost in one phase of production usually creates a chain reaction and the losses cannot easily be made up. Unless exceptions to the planned schedules are clearly recorded and quickly noted, corrective action becomes more difficult, and the whole production schedule can be seriously affected.

Standardized forms developed for allotment accounting records during World

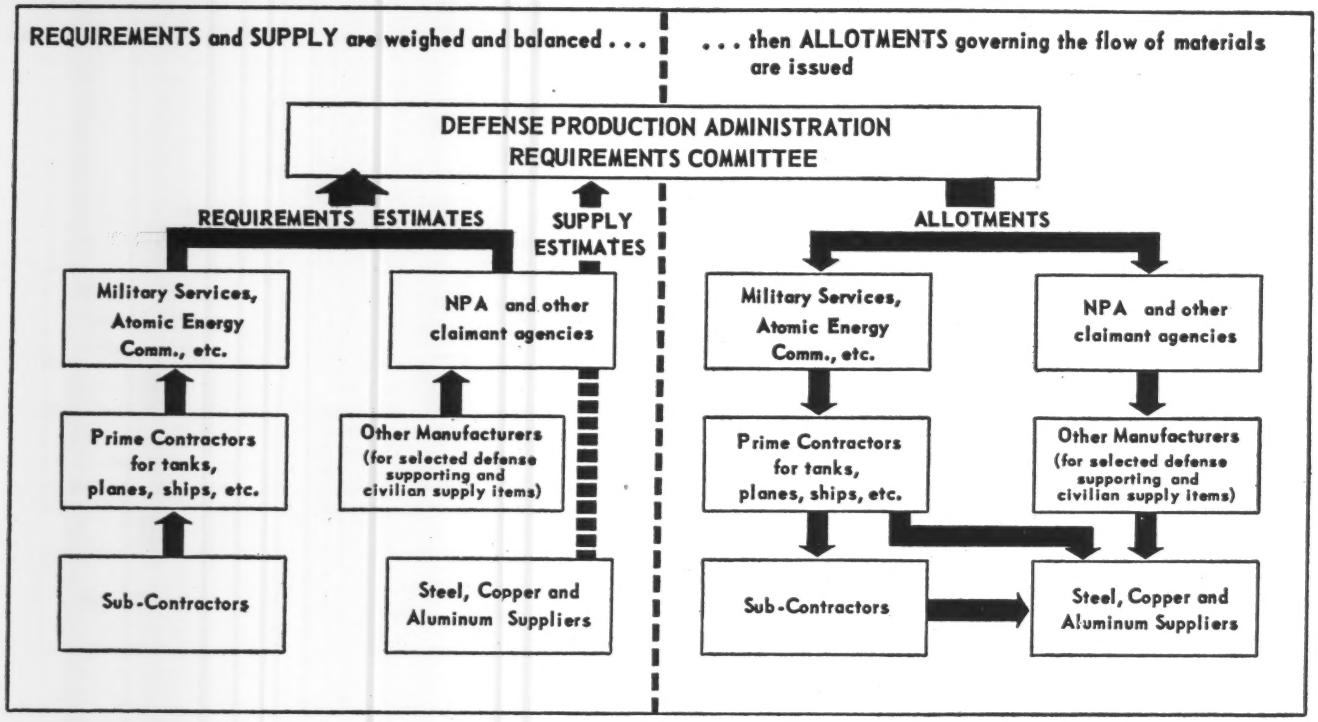

REQUIREMENTS and SUPPLY are weighed and balanced . . .
. . . then ALLOTMENTS governing the flow of materials are issued
DEFENSE PRODUCTION ADMINISTRATION
REQUIREMENTS COMMITTEE
REQUIREMENTS ESTIMATES
SUPPLY ESTIMATES
ALLOTMENTS
Military Services, Atomic Energy Comm., etc.
NPA and other claimant agencies
Prime Contractors for tanks, planes, ships, etc.
Other Manufacturers (for selected defense supporting and civilian supply items)
Sub-Contractors
Steel, Copper and Aluminum Suppliers
Military Services, Atomic Energy Comm., etc.
NPA and other claimant agencies
Prime Contractors for tanks, planes, ships, etc.
Other Manufacturers (for selected defense supporting and civilian supply items)
Sub-Contractors
Steel, Copper and Aluminum Suppliers

Chart 2. How the Controlled Materials Plan is set up

War II are, for the most part, equally effective today. Visible records designed to speed posting operations and to provide "bar charting" control and to prevent loss or misfiling of vital records comply in every respect with the suggested record-keeping forms recommended by the NPA.

For the accumulating of a record of purchase orders placed for controlled materials to meet production requirements of each schedule or program there are available for use with the standard allotment accounting forms a new overriding sheet. This unusual combination of records allows for positive control over extensions of allotments when they are received, and covering purchase orders which have been placed in advance.

Speed in extending allotments against outstanding orders is highly important where allotments are extended by NPA to groups of industries at the same time, because the sequence of shipments by suppliers is governed by the dates on which the extensions of CMP allotments are received by them.

Particularly important where cutbacks in allotment applications are made by NPA and passed down to prime and secondary consumers is the summarizing of allotments for each type of controlled material as indicated by bills of materials for models scheduled for production during each month. With visible scheduling control records, adjustments of outstanding orders against the requirements can be made promptly to make certain that no deliveries are made in violation of CMP regulations.

INVENTORY CONTROL IMPORTANT

Because CMP Regulation 2 provides that no user of controlled materials shall accept delivery of certain materials under specified conditions, effective inventory control is highly important. The condition specified is that if his inventory of such items is, or shall by receipt of additional shipments become in excess of the quantity of such items required during a succeeding period of days, he shall not accept delivery. In the case of steel the period is 45 days, or "a practicable working minimum", whichever is lower. Inventories of items of aluminum and copper are similarly restricted, but with the "practicable working minimum" or 60 days as the restrictive period.

In the matter of inventory records, effective control can be effected through *visible* record systems which graphically chart the stock of each item against the scheduled use of that item for a given period. This reveals effectively those items which are in "long" supply and where steps should be taken to postpone scheduled deliveries which would result in excessive stocks.

Similarly this sort of charting of the inventory status of each item reveals instantly the possibilities of shortages so that there is time to start expediting action to prevent out-of-stock situations.

It is recommended that inventory information on individual items be segregated according to the form and shape of each controlled material, in order that summary records may be quickly compiled for each quarter's Application for Allotment.

It should be remembered that inventory records should reflect requirements, receipts and current stock on each item of material, so that corrective action can be taken on the basis of accurate records on every individual item.

Detailed information on many forms and equipment for establishing production schedules, "exploding" requirements of parts and raw materials, controlling materials, and for Allotment accounting cannot be presented in the space allotted here. However, it is given in Research Reports on CMP available at any Remington Rand office or through the Management Controls Research Department, 315 Fourth Avenue, New York 10, N. Y.

Magnetize, Mobilize and Energize!

By RALPH E. RICHMAN

Vice President, The National Underwriter Co.
New York City, N. Y.

Here are three principles to guide the busy executive in planned perusals of his favorite publication.

HOW TO GET the greatest value out of your business periodical is important. Skill in grasping and making use of what you read can be improved by practice when this practice follows correct and rewarding methods.

Nearly all of us read papers and magazines because we like to learn what is happening to people we know and to our business field. That is a first way to read a business paper, because no one should omit enjoyment from business. But the reader who stops there has not begun to get his reading rewards.

Approach the business periodical with these guides—Magnetize, mobilize, energize!

Anyone who wants to get the greatest value from his reading must *magnetize* his mind while he reads to catch what is of significance to him. A first item of significance may be some statement which the reader knows he should understand and yet which he does not understand. That is a good place to make a note to inquire for the information that will bring understanding. Here are several ways to magnetize the mind to catch what is significant: Think of people upon whom he is to call within the next few days and about what is to be discussed. With this magnet it will be just about impossible to go through a full issue of a magazine without finding something of value to be used in the coming interviews. Particularly stimulating is a plan of determining what is the most important interview ahead within the next week and then starting to let the mind gather together what will be useful in that interview.

Those who study mental operations tell us that we remember far better that which we study for the purpose of use. What is then learned can be doubly riveted into operating equipment by immediate and if possible quickly repeated use.

The executive who goes over the paper or magazine having in mind the decisions he must make within the next few days is almost sure to find some helpful references. Sometimes the publication provides a direct answer. More often it will suggest where to go or how to proceed in finding facts or background necessary for decision. Gold is seldom found on the ground but finding it is speeded up by knowing where to dig. The business periodical can be unusually helpful in showing where to dig.

MOBILIZING INFORMATION

A most important source of directing power for executives is the ability to magnetize the mind to catch the significance of relationship in business. The day is past, for example, when anyone can crawl into a cubby-hole and conduct even his own department affairs successfully without knowing just how he and his work fits into all other activities of business. So rapid are the changes today that only one who reads intelligently the news of the day can meet relationship requirements.

The chief reward for magnetizing the mind to catch what the reader wants is that the reader then draws to himself from what appears before him exactly that understanding which does make for relationship with what he already knows. Much of the most effective reading of business periodicals can be done "between the lines." The reader puts together what he already knows with what he sees on the printed page and comes up with a third fact which is more significant than what he did know or what appears on the page.

Information is like an army. It must be *mobilized* to be effective. Many successful executives began early in life to maintain their own reference files. When a discussion in the business press appeared to have permanent value, the scissors came out and the item was filed away under the right heading for future use. Oftentimes a mere glance at a clipping put away five years ago brings back the details of the clipping when otherwise hours might have to be spent seeking the particular ideas or facts in it.

Many a man owes a great part of his success to his habit of placing his sources and references in form for ready use. Mobilized information has lost its fragmentary and isolated character. It has been put into an array of like information which can have real striking power. If a man will practice with his business paper to mobilize his information, that practice in itself will begin to carry over into other fields of activity to the great reward of the practitioner.

BE SURE TO ENERGIZE

It is futile to magnetize and mobilize unless you also *energize*. In fact, one of the most fruitful ways to read the business paper is simply to examine the articles in it with a question, "What is this telling me to do?" Maybe one's being told to write a letter, another not to send the letter written yesterday, another to file away the information for future use, another to go out tomorrow to see someone, another to call a meeting in the office and pass on what was in the article or the conclusions that were compelled by reading it. The reading of a business paper becomes exciting fun and pays a big bonus to anyone who will do it intelligently.

Anyone who will magnetize, mobilize and energize when reading regularly this magazine will be getting top value out of it. He will provide himself with skills for mining untold wealth from all else he sees, hears and reads.

SOCIETY NEWS

NEW WEST COAST CHAPTER HAS 30 CHARTER MEMBERS

ALMOST A YEAR AGO the President of SAM, Dillard E. Bird, now Director-at-Large, visited Portland, Oregon, making arrangements for a future chapter in that city.

Since then the definite need for such an organization has been carefully nurtured and plans were followed through for the formation of an SAM chapter. Under the organizing leadership of Professor William E. Engesser of Oregon State College, prospective members were selected and enthusiasm grew toward full cooperation in organization.

Portland is now a chapter of SAM, serving the members in that section of the country. Fifteen members, thirteen Associates and two firm members (making a listing of thirty charter members) were added to their books. The charter will be presented in the fall.

The officers of Portland are:

President—Arthur F. McGarr, General Manager of Lomac Motors, Inc., 306 S. E. 8th Avenue, Portland 14, Oregon.

Vice President—Erling H. Hustvedt, methods engineering consultant of Hustvedt & Moore, 902 Equitable Bldg., Portland 4, Oregon.

Secretary—Walter A. Diehm, Division Industrial Engineer of Crown Zellerbach Corporation, West Linn, Oregon.

Treasurer — Richard M. Schouboe, Assistant to the Chief Industrial Engineer, Aluminum Company of America, River Road, Vancouver, Washington.

National Director—William F. Engesser, Professor of Engineering, School of Engineering and Industrial Arts, Oregon State College, Corvallis, Oregon.

INDUSTRIAL CONFERENCE

MICHIGAN STATE COLLEGE is holding its Third Annual Industrial Engineering Conference, sponsored by the Industrial Engineering Division of the Mechanical Engineering Department on September 10-15. The first two days will be devoted to a general conference and the last three days will be operated on a "workshop" basis. The SAM student chapter of Michigan State, which is affiliated with the School of Business Administration and advised by Professor Stanley Bryan, will participate in this conference. Associate Professor James M. Apple, Mechanical Engineering Department, Michigan State College, East Lansing, is in charge of arrangements.

W. H. NEWMAN HONORED

WILLIAM H. NEWMAN, professor of business administration and SAM member, has been named as the first Samuel Bronfman Professor in Democratic Business Enterprise at the Columbia University Graduate School of Business.

Professor Newman, 41, is one of the youngest faculty members in Columbia's history ever to occupy an endowed chair. As Samuel Bronfman Professor, he will have a major responsibility for furthering the Foundation's objectives. The Foundation was established last March by the affiliated Seagram companies, several of which are firm members of SAM affiliated with the Louisville and Cincinnati chapters, in honor of Samuel Bronfman, president of Distillers Corporation — Seagram Limited of Canada.

INSPECT STEEL PLANT

THE MILWAUKEE CHAPTER, with sixty members and guests present, was the first organized group to visit the new Stolper Steel Company plant recently at Menomonee Falls. L. L. Dorst, SAM member and industrial engineer at Stolper arranged the trip in cooperation with Carlton Steinke of Cutler-Hammer, Inc.

Dr. R. A. Doty, director of personnel evaluation services with George Fry and Associates, Chicago, presented at the June meeting of the Milwaukee Chapter a discussion of measurable characteristics of executives in comparison with staff department managers, foremen and the general adult population in the United States.

MAN OF THE YEAR

GEORGE A. SIEVERS, SAM member affiliated with the Milwaukee chapter, was honored recently when "Technical News," annual publication of the Evening Technical Engineering Division, Milwaukee Vocational and Adult Schools selected him as its "Prominent Personality of 1951." Mr. Sievers, president and founder of the Industrial Engineering Institute and specialist in vocational and psychological guidance and management counseling has authored several papers on professional development, engineering ethics and training.

Standings for the Emerson Trophy

CHAPTER PERFORMANCE AWARD AS OF JUNE 30, 1951

MOVING UP TO a strong first place this year the Washington chapter of SAM seemed to have the lead and enough points to maintain it. But as was true last year when Washington passed Cleveland by a slim margin at the final count, Milwaukee has topped Washington with a good showing of points. All that remains now is the final calculation of annual points to be estimated by the committee on the Chapter Performance Award Plan. Chairman of this committee is Harry A. Dorsey of the Worcester chapter. This final count will determine the winner of the Harrington Emerson Trophy Award for the year 1950-51.

CHAPTER	TOTAL
Milwaukee	2765
Washington	2646
New York	2183
Greensboro	2130
Pittsburgh	1919
Detroit	1918
Philadelphia	1677
Central Penna.	1378
Boston	1249
Trenton	1201

Mirrors Extend The Scope of Cameras

By CLIFTON A. ANDERSON

Professor of Industrial Engineering,
The Pennsylvania State College

and

GEORGE L. THUERING

Assistant Professor of Industrial Engineering
The Pennsylvania State College

The picture at the right (Figure 1.) might be entitled "Reflections on a Man's Work in Time and Motion Study". It shows the arrangement of the mirrors over the work table.

WITH THE INCREASING emphasis on the study of fundamental motion times, and with a knowledge of the critical importance of *length* of motions in assigning motion *times* to the various elements involving movement, further emphasis on accuracy in determining the length of the motions is appropriate.

When filming an operation, even in the laboratory, it is frequently difficult to locate the camera so that all motions are in view, and it is not feasible usually to get a view normal to the top of the work place. Since motions may occur at any angle to the line of sight of the camera, accurate estimates of distances moved are difficult, if not impossible, to obtain.

To overcome these difficulties, the Time and Motion Study Laboratory of Pennsylvania State College has developed a method to permit the simultaneous photographing of an operation from three directions (See Figure 1). This is accomplished with two mirrors; a specially laid out work area, and a 16 mm camera equipped with a 15 mm wide angle lens. The 30″ x 40″ overhead mirror is inclined at an angle to produce a virtual image corresponding to a top view of the work place (See Figure 2 for details). The 20″ x 40″ mirror at the front is placed to give the appearance of a direct frontal view. The third or side view is obtained directly by the camera. Figure 3 shows the three views as they are recorded by the motion picture camera. The top view is in the upper left quadrant, the direct or side view in the lower left, and the front view in the lower right. The remaining quadrant is used for information and identification.

HOW TO USE GRIDS

In order that accurate estimates of distances may be obtained, a grid system is employed in each view. This is easily accomplished for the top view with a series of lines spaced at one-inch intervals painted on the top of the work table. In the side or direct view, the grid is in the background — a board with painted lines is set up at the back edge of the work table. One-inch spacings are recommended here, also.

For the front view, an open one-inch grid is used to allow the operator full freedom of movement and still see his motions from the front. With this arrangement it is possible to determine distances in the three views. However, for most purposes the background grid is recommended for vertical measurements and the table top grid for horizontal and lateral movements.

Since these grids are not at the point of motion of the hand, the apparent distance the hand moves as projected on a grid is not the actual distance. Correction is necessary in order to obtain true distance. The amount of correction depends on the location of the camera relative to the work area, the position of the grids, and the position of the hand relative to the grid. The correction factor is determined by means of the familiar similar triangle relationship. For a standard set-up the position of the camera and grids is fixed, and the corrections can be standardized and reduced to chart form.

In order to determine the true length of a motion it is necessary to fix the location of the hand in terms of a normal to the table top at both the beginning and end of the motion. That is to

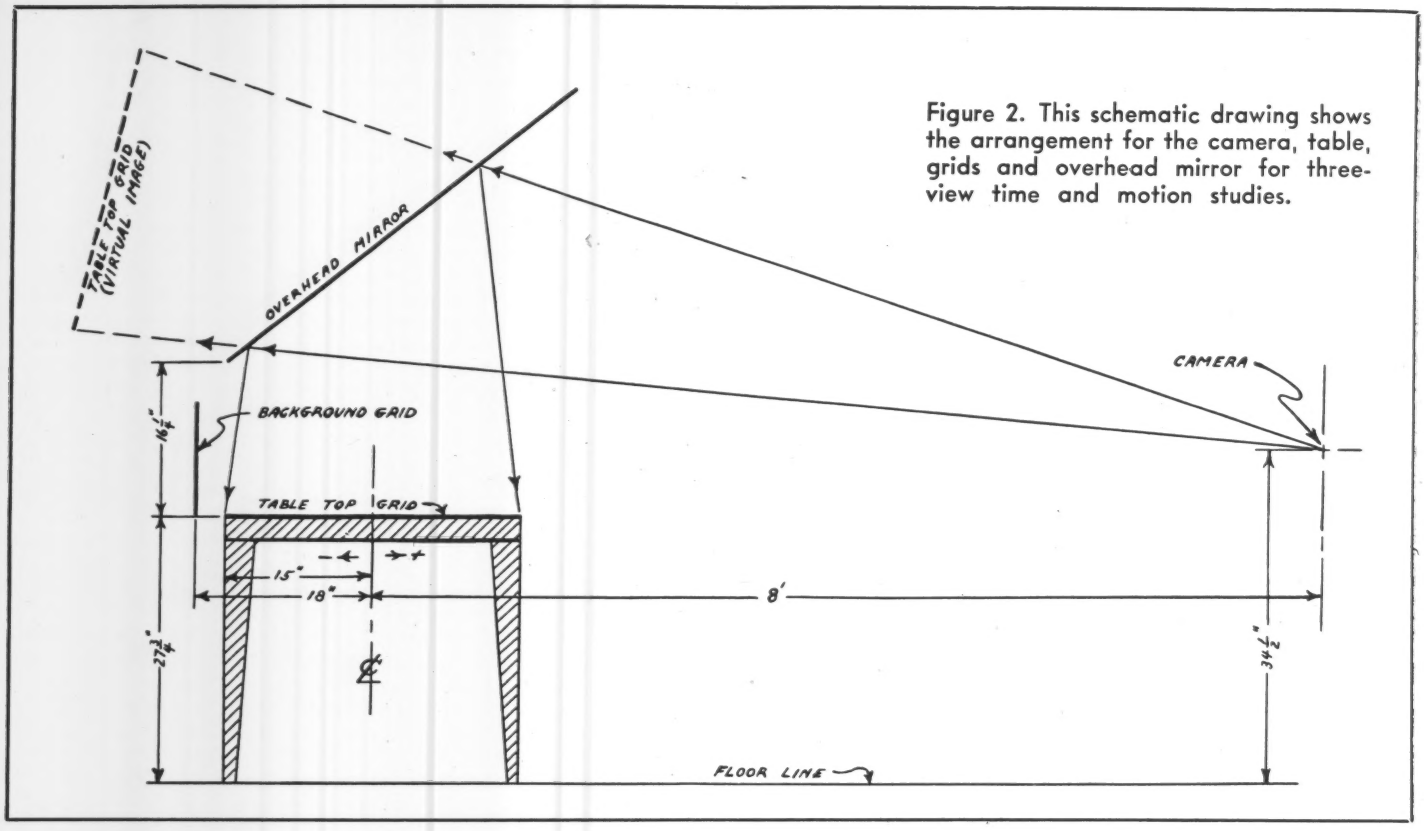
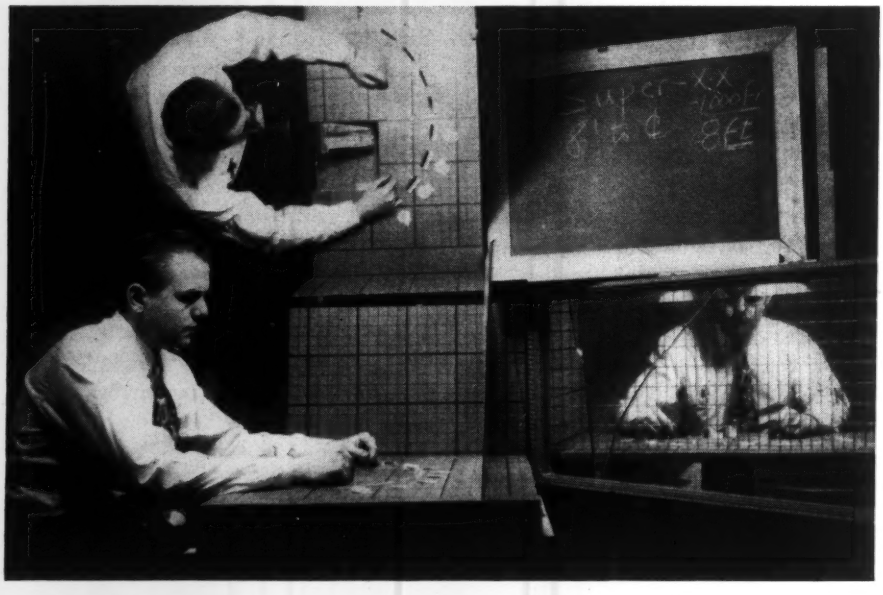


Figure 2. This schematic drawing shows the arrangement for the camera, table, grids and overhead mirror for three-view time and motion studies.

say, the X and Y coordinates are ascertained for the locations of a point on the hand at the beginning and end of the movement. The X values may be taken as plus when to the right of the center line of the work bench, and minus when to the left. The Y coordinate is the true distance from the operator's edge of the work table. Introduction of movement in the third dimension requires the determination of a Z coordinate. With the X, Y, and Z coordinates known for the hand location at each end of the movement, a computation of the true distance moved may be readily carried out.

Figure 3. For this one, the logical title would be "Reflections on Man Working." It shows camera view.



COMPUTING CURVED MOTIONS

The measurements need not be confined to straight motions; length of curved motions may be computed by reducing the motion to sections and summating the components.

The fact that the mirrors are used does not imply that measurements must be made in great detail. The opportunity to check movements in three views often answers many questions not otherwise answerable.

While the described set-up may seem to excessively complicate and slow down the already time-consuming job of frame-by-frame analysis, in some respects it speeds it up. Thus, in some cases only the top view may be needed. The other views serve to resolve end points quickly, or determine the class of motion.

As for the determination of distances, it is something which frequently is fixed and need only be determined once. Add to these features all of the tools required to get accurate measurements whenever and wherever needed, and the opportunities to do much more accurate work in fundamental motion time determination have been greatly improved.

Office-Plant Integration Brings Production Benefits

By PAUL SCHNEIDER

Cost and Methods Supervisor
National Motor Bearing Co., Inc.
Redwood City, California

Heavy percentage of short runs and operations on an inventory of 10% of annual sales are achieved through careful planning made possible by high-speed punched-card equipment.

HIGH-SPEED, AUTOMATIC business machines in the front office can be a production tool of great value to manufacturers faced with the need for developing better machines and methods in the shop.

We have clearly established the value of an often unsuspected link between business machines and factory equipment. In the process of cost finding and statistical compilation and summary work we have been led into the developing of new machines and shop shortcuts.

Manufacturers of shims and oil seals which are used in Chrysler, Ford, General Motors and other automotive and allied equipment, National Motor Bearing Co., Inc. has a line of more than 12,000 different items. Of these, more than 4,000 are what we consider fully active; in other words, they are ordered regularly, to the tune of about 7,000 orders a month.

TIME GAP REDUCED

That calls for a lot of paperwork control; for an inventory system that combines speed with economy and prompt availability of figures; for detailed sales statistics, and for close production control. By means of our punched-card procedures we have been able to step up the cost finding and other control processes from a timetable that called for full figure facts within 30 days of completion of work to one that now does not go beyond five days from completion.

National Motor Bearing uses tabulating equipment to keep constant and complete control on every element of production, stock and sales, and the results of the fast, accurate figures on job costs have been amazingly broad. Through this high-speed, automatic accounting and statistical procedure we have uncovered innumerable shorter and faster ways to produce nearly every product or part, and to designing and developing machines and multiple dies.

HIGH SHORT-RUN SCHEDULES

Because of the very high percentage of short runs on specialized equipment, cost finding presented a number of problems. For instance, the average number of jobs on which each employee works each day is eight. Under our old manual methods it was impossible to obtain anything but the most haphazard cost estimates, and we were fairly well satisfied if even these hit-or-miss figures were available a month after the job had been completed.

Our tabulating department costs, for machine rental, supplies and the operating staff, amounts to approximately 21 clerical pay units. Manual methods would call for costs of about twice that —and we would not have the range of control material, the accuracy and the timeliness we now enjoy. The machine rental and cost of cards and other supplies comes to the equivalent of around 11 clerical pay units a year. The staff cost equals the other 10 units, for a supervisor and eight operators on the day shift, and one operator at night.

The equipment with which we secure our daily tabulations of the costs of labor and material, our stock control, sales statistics and other records consists of the following: an Alphabetical Tabulator; two Numerical Tabulators with Summary Punches; two Interfiling Reproducing Punches; a Printing-Multiplying Punch; eight Automatic Punches; three Sorters (25,200 sorting operations an hour) and an Automatic Verifying Machine. All are Remington Rand.

DAILY STOCK REPORTS

In securing the daily tabulation of the costs of labor and material, a unit punched-card is prepared for each of the jobs on which an employee will work each day. Another card is prepared for each lot of material issued for a job.

A Production Inventory Control report for the day is tabulated to combine inventory, in-transit, production orders and sales. This provides a clear picture of the current situation on all of the 4,000 or more active items in the line.

For the preparation of stock summaries, we tabulate a component parts inventory on the first of each month. In this procedure a unit card is punched for each lot received from the production department. This appears as a debit item, for control purposes. It becomes a credit item when the lot is issued to the assembly line.

INVENTORY TABULATING

National Motor Bearing operates plants in Redwood City, in Los Angeles, and in Van Wert, Ohio. There are seven warehouses for the distribution and basic materials stocks. Accurate inventory controls for the 4,000-plus active items and the 8,000 "occasionals" and for basic materials in the plants and warehouses are maintained at an over-all cost of approximately 12.5 clerical units. This figures to less than 6 percent of the

value of inventory required for an annual sales volume of over $6,000,000. So efficient is the procedure, we are now able to operate on an inventory of approximately 10 percent of annual sales.

The extent to which accurate control is obtained in the stock records by punched-card procedure is exemplified in the results of the last semi-annual physical inventory. At that time the actual count came within $500 of matching the punched-card reports, which made for better than 99 percent of absolute accuracy. Under our old manual methods, inventory records were always inaccurate, because of mathematical and posting errors, and as a result it was always difficult to check losses and to maintain anything even close to a balanced stock.

From the sales standpoint our close control has resulted in better service to jobbers. We emphasize the importance of keeping all fast-moving items in stock at all points, and although we have reduced inventory tremendously we have succeeded in keeping in stock more than 98 percent of the 4,000 most active items. This goes a long way toward getting and holding the kind of jobbers we value.

Their Punched Cards Are Production Detectives

SIGNIFICANT PRODUCTION FACTS can turn up in unexpected places. The way guides to better plant operation have turned up in their office procedure have been extremely gratifying to the management of National Motor Bearing Co., Inc. This is stated by the author of the accompanying article, who goes on to highlight the benefits the company has noted from its high-speed business machine procedures in these words:

"We have discovered just which of our lines produce greater profits . . . and we have been able to advise the Sales Department when prices needed revision, and when to discontinue certain items in a line so as to prevent losses.

"We have uncovered shorter and faster ways to produce each part . . . and, as the result of our cost finding and other procedures, we have been prompted to develop multiple dies for use in the manufacture of more of our items.

"We have found that our punched-card (tabulating) job costing makes for better production control . . . and that much time and labor is saved in our cost accounting.

"We have found that statistical material developed in the office has led to many improvements in production in the plant . . . In one case we definitely established that a particular punch press is better adapted for a certain operation than was the press actually in use, by disclosing that the operators were using the press easiest to operate, rather than the one most efficient for the purpose."

A ONE-A-DAY PROGRAM

Our tabulating section is so set up that with the addition of two clerical and one machine units we can tabulate all production control detail each day. However, we haven't found that essential to this point, so we now arrange our line in five groups or series of items. Handling them in rotation we tabulate one of the groups each day, with each series completely reported for production control purposes on the same day each week.

Under this one-a-day plan the control clerks analyze the day's reports on one series each day and prepare the necessary production schedules to take care of warehouse stocks. All current production and transfer orders are penciled in on each of the five series reports, which provides us with what amounts to a daily perpetual inventory record, except for sales.

BETTER SALES CONTROL

For sales control purposes our sales statistics are divided between industrial bulk and replacement orders. The sales by warehouses for the current quarter in each category are compared to the same groupings for the like quarter of the previous year, and for the quarters already completed in the current year.

For certain products we tabulate a monthly list of sales by territories, listing the customers who have purchased those items. The figures are posted to a visible index sales records with the dollar value of sales from the accounts receivable billings. This helps salesmen in their approach to other customers who should be carrying those items.

GUIDES FOR JOBBERS

To provide our jobbers and dealers with guidance we check on slow-moving items by means of periodic tabulated reports. On the basis of these reports we can suggest to the dealers and jobbers the reduction of stocks on slow movers and increases on those items on which there is a general demand.

By making our punched-cards serve for primary control records and for other procedure "by-products" we have been able to streamline many of the office operations. Payroll is an outstanding example, and there our procedures are simplified to an outstanding degree. Material prepared for this purpose also serves for the preparation of our labor distribution and other cost finding operations.

Using a set of master employee cards, time cards are pre-punched and reproduced in large numbers, for use by the employees to keep the record of their in-out time. As soon as the cards have been prepared on the Automatic Reproducing Punch they are put through the Interpreter. This prints on the face of the card the alphabetical and numerical information which has been punched into the 540-position field of digits, so that the cards are easily identified and the employees can keep the record of the distribution of their time. The timekeepers' work of checking is made easier.

For the labor distribution records the time cards are employed as the media for the preparation of a unit card for each separate operation (the average eight per worker, per day). The unit cards are then automatically sorted, rated, extended and tabulated.

Prorating of the time to the jobs worked on is done by a payroll clerk. and then the cards are sorted by hours worked. The Automatic Punch is used to record in the cards (handling a number of them in each operation) the dates and hours for payroll purposes.

AUTOMATIC VERIFICATION

By means of the master set of rate cards the duplicated payroll cards are run through for verification, and in the process are also automatically punched with the proper rates. The Printing Multiplying Punch then extends the hours times the rates to determine the gross earnings for the day.

Tax figures, such as for Social Security and Withholding, and other deductions are reproduced automatically by means of the Reproducing Punch where there is little variation in large groups of cards. In other instances this information is punched in by the operator.

Once a week the punched payroll cards are placed in the Alphabetical Tabulators. Operating automatically and printing at a speed of 100 lines (of up to 100 characters per line) per minute, the tabulator prints the net pay check, the deductions record and the payroll register in one operation and does the entire payroll in about a half-hour.

MANAGEMENT ADVANTAGES

In addition to greatly improved operating efficiency, up-to-the-minute reports and records, and very appreciable economies, our experience with punched-card procedures has shown that the greatest advantage has been in the prompt, accurate and extensive reports and statistical compilations available to management throughout all departments of our organization.

We have closer cost analyses, efficient payroll handling, and inventory and sales figures that make for real control and in forms that simplify executive review and action for better planning.

CUT THE COST
of office paperwork
with the NEW BW COPYFLEX®

make copies . . . in seconds . . . for pennies

The BW Copyflex can be located anywhere in your office — it emits no fumes, needs no inks, stencils, trays, exhausts or special room lighting.

With the new BW Copyflex, you simplify and speed up office paperwork by eliminating time-consuming transcription, retyping, and other costly duplicating methods. With a BW Copyflex, you write it once, make copies as needed.

Records, orders, invoices — on letterhead or printed forms — are reproduced in seconds. Copies are crisp, errorproof, smudgeproof — flat, dry and ready for immediate use. The 100th is as sharp as the first. Cost for an 8½" by 11" copy averages less than 2 cents.

Think what you can do! Original orders can be reproduced as production forms, shipping tickets and invoices. Extra copies of special reports can be made without retyping. Duplicates of bills are available in seconds. Materials can be copied confidentially by your own private secretary, if you wish.

See how the BW Copyflex can help you . . . send for free booklet today.

BRUNING

Specialists in copying since 1897

CHARLES BRUNING COMPANY, INC.
Dept. X-81 100 Reade St. New York 13, N. Y.

☐ Please send me your free booklet A-1078.
☐ I would like to see a Bruning BW machine demonstrated.

Name_____ Title_____
Company_____
Street_____
City_____ Zone_____ State_____

The Management Bookshelf

The Technique of Executive Leadership, by JAMES F. BENDER, McGraw-Hill Book Company, Inc., New York, $3.50.

THE AUTHOR, who is Director of the National Institute of Human Relations, has written a simplified discussion of practical leadership. Having almost completely avoided the theories of leadership, he has talked about the art of leadership and the tools available for determining degrees of leadership.

Mr. Bender begins his book with a description of the combination of qualities that produce a leader, such as: good average intelligence, strong drive, robust health, deep interests, willingness for hard work, ability to get along with people and worthwhile goals. From this point, the book deals largely with simple rules and practices to follow in developing and maintaining these qualities of leadership.

Quite a bit of the book is devoted to sample quizzes or tests to be taken by the reader to show him how his answers compare with the results as compiled from tests taken by successful leaders. Although the tests are good samples of the types available for readers sincerely interested in self-analysis, they are of little actual value since few individuals are familiar with techniques of interpretation used by scientific researchers. However, by attracting attention to the wide scope of tests available, the author may have justified the inclusion of this material. Other than this, the book may be divided into the following three areas:

1. A large part of the book discusses the importance of the development of the individual's thinking habits by improvements in memory, in reading ability and in speaking ability. The author lists in a very concise form, rules to simplify speech and writing, to develop memory, and to improve reading methods and efficiency.
2. Another section of the book contains a brief study of leader types, a discussion of introverts and extroverts, means of developing popularity, and general personality development.
3. And, finally, the book presents a brief description of techniques for conducting routine business activities such as successful interviews and conferences.

In general, this book presents no startling or unusual material, but it calls attention to common factors that leaders and business executives are apt to forget or overlook. The book is simply written for rapid reading and contains a number of valuable reference lists for further reading in the general field of executive leadership.

William M. Reindollar
Plant Manager
The Calvert Distilling Co.

Production Forecasting, Planning, and Control, by E. H. MACNIECE, John Wiley & Sons, Inc., New York; 1951, 305 pages, $5.50.

AUTHOR AND PUBLISHER should be congratulated for this book. It is one of the all-too-scanty number of publications which are truly representative of progressive management. This study skillfully combines practical experience with theoretical reasoning. It will be equally welcome to the factory and office executive as to the student and teacher of management and industrial engineering.

E. H. MacNiece has been courageous enough to deal with a primarily economic problem, not merely from the economic viewpoint. Non-technical aspects are considered with like care. For example, in his discussion of the organizational arrangements for production planning and control, ample space is devoted not only to the functions involved but to their human relationships as well.

In another instance, Production Control's unique position as a link to many departments in a concern is spotlighted in two excellent chapters on cooperation with Accounting and Quality Control. Collaboration with other parts of the firm is carefully considered in other parts of the book.

The author successfully shows the importance of planning as an integral part of the activities of modern management. It rightly brackets together the interdependence of production with all other types of managerial planning and it appropriately considers sales forecasting or equivalent work as their mutual basis. In addition, the author has recognized the close relationship of these functions with the control tasks of management.

Many illustrations and a wealth of practical case examples are included in the less than 300 pages of this work. It should become standard reference for executives of all echelons and industries.

ALEX W. RATHE
Associate Professor of
Management Engineering
New York University

Climbing the Executive Ladder, by GEORGE J. KIENZLE and EDWARD H. DARE. McGraw-Hill Book Co., Inc., New York. 247 pages, $2.95

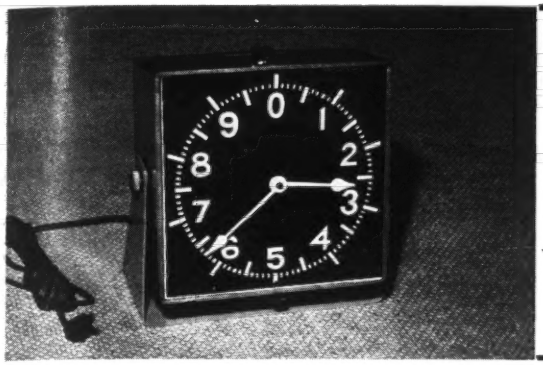
THE TWO AUTHORS use a wealth of practical experience and a knowledge of much of the popularly written material to write an interesting book. It can be helpful to every person in the organization from office boy to president.

Climbing the Executive Ladder is more of a popular book for potential executives than it is a research contribution. The authors evidently recognized the difficulty of making a strictly scientific job popular enough to get a wide reading.

It is to be hoped that the authors or equally interesting writers provide in the future a more penetrating approach to some of the problems suggested. For example, it is difficult to do justice to a chapter on "*Human Relations*" in less than four pages or to a chapter on "*Understanding People*" in less than fourteen pages, part of which is illustrative.

This fact does not imply a criticism of the book. Rather, it suggests that popular narrative texts must be supplemented with the basic scientific evidence. Since there are reasonable limits to the size of a book to be read by busy executives, it is helpful to provide a bibliography for those who wish to get their teeth into any one of the many problems met by every reader.

ROSS YOUNG
Marion Sentinel
Cedar Rapids, Iowa



MEMOMOTION AND TIME STUDY EQUIPMENT

A. Automatic Analysis Projector with push button control and frame counter.
B. Eastman Cine Special Drives:
Multi speeds and single speeds ranging from 30 to 4000 frames per minute.
C. Michrochronometer—for time operation.

Specifications and prices on request.

LAFAYETTE INSTRUMENT COMPANY

26 N. 26th Street, Lafayette, Indiana

The Decline and Fall of British Capitalism, by KEITH HUTCHISON, Charles Scribner's Sons, New York; 1951, 299 pages, $3.50.

THIS IS A STUDY of the evolution through democratic processes of the political, economic, and social life of Great Britain. The major emphasis is placed on the political and economic factors, the driving forces being the desire of the working people for social and political reform.

The book opens in the early 1880's at a time when British capitalism, after a century of amazing progress, began to show signs of faltering. From this time on to the present date, British capitalism lost ground to other forms of capitalism for world markets. In a short period of 61 years the role of the state changed from that of a neutral policeman to a social worker and economic planner.

British capitalism paved the way for its own fall through its conservative attitude toward technological improvements, and its resistance to the social and political needs of the working class. The author traces the development through this period, indicating the political and economic changes which took place. Labor, as a political party, was first made up of a small group of labor unions and socialistic clubs which paved the way for political action on an ever-increasing scale. Labor early recognized that only through political action could they bring about the control of their own destiny, which they felt could no longer be vested in the ruling class of England.

The ruling class contented itself with fighting a delaying action which was marked with periods of truce and counter-offensives. It was more concerned with the status quo of Britain's industry through monopolies and other forms of protection against foreign competition. At the same time the worker suffered, due to the lack of leadership and foresight of Britain's industrial leaders and rulers. It became necessary, periodically, to reduce labor costs in order to compete in world markets. British capitalism brought on itself Government control and regulation, which eliminated the free market system before the advent of the Labor Party as the political power, the author contends.

World War I brought about further social reforms and the disintegration of the once powerful Liberal Party. The profit system was placed on trial during the mine strike of 1919. At that time a Royal Commission recommended nationalization of the coal industry.

The depression of the 30's brought defeat of labor in Parliament, and a loss of prestige. This was just another in the "up and down" periods of the movement towards the eventual political control which was achieved in 1945.

The author points out that many of the reforms were not put through by the Labor Party, but by the old-line political organization. These reforms, however, reflected the growing strength of Labor as a political organization and were done in an effort to obtain their support.

British capitalism relied on monopolistic practices which tended to protect inefficient producers and resulted in high prices in the domestic and foreign markets. In contrast, American capitalism relied on the free market system, which eliminated inefficient producers. British industry and the Government were ruled by the upper-class, who felt that it was their right to control the destinies of the country. In addition, there did not exist social mobility which permitted the worker to move from one class to another, based on his own efforts. In contrast, we in the United States believe in social mobility as an important segment of our incentive system. A person's status in society is almost a direct function of his own efforts and success.

"The Decline and Fall of British Capitalism" leaves the reader with a better understanding of socialism in England. It presents a much required perspective from which one can appraise trends in the United States. This book is an important segment in the understanding of our times.

JOHN A. FOURNIER, Project Engineer
Johnson and Johnson, Chicago

Reward!

...rich rewards to those who find uses for

VEEDER-ROOT COUNTERS

as built-in parts of their products

It takes time and brainwork ...both on *your* part and ours...to determine profitable uses for Veeder-Root Counters as built-in parts of your product. And this search may pay off *plenty* ...as in the case of the X-ray tube manufacturer who found a way to make V-R Counters (built-in as standard parts) prove his product's guarantee! NOW... let's see what we can do for *your* product.

Write today for Free 8-Page "COUNT BOOK"

VEEDER-ROOT Inc., Hartford 2, Conn.

The Wage and Salary Regulations in Review

By BENJAMIN WERNE

Attorney and Adjunct Professor, Industrial Relations,
Graduate School of Business Administration,
New York University, New York

CONTROLS OVER WAGES and salaries have been established as part of the government's effort to prevent a flood of inflationary pressures from swamping the defense economy. Functioning within the structure of the overall Economic Stabilization Agency, a Wage Stabilization Board (WSB) and a Salary Stabilization Board (SSB) have been assigned the task of formulating "hold the line" policies.

It is clear, first of all, that few will be exempt. From the common laborer, barely earning enough to meet Wage-Hour minimum requirements, to the $50,000-a-year corporation executive, all will feel the impact.

Equally clear is the fact that direct and indirect wages are to be controlled. This means tighter and more complete control right from the start than was experienced during World War II. The program faces up to the fact that base rates are but one facet of wages — benefits and so-called "fringes" are important elements of the total pay. In the first of a series of General Wage Regulations, the Wage Board declared that "wages, salaries and other compensation" would be covered, and that this would include:

> ". . . increases in all forms of remuneration to employees by their employers for personal services, including, but not limited to, vacation and holiday payments, night shift and other bonuses, incentive payments, year-end bonuses, employer contributions to or payments of insurance or welfare benefits, employer contributions to a pension fund or annuity, payments in kind, and premium overtime practices and rates."

Anchoring the program is a determination of the "base pay period." All permissible increases, whether general or individual, will be computed from that base. It has been set at the first regular payroll period, ending on or after January 15, 1950. Initially, a 10% ceiling has been imposed on any general increase granted to employees above the level of employees as a group.

To figure the wage (or salary) level, an average of straight-time earnings received by employees in the appropriate unit during the base payroll period is computed. The earnings total includes wages (or salaries), incentive, commission, bonus or premium payments. Earnings resulting from overtime compensation, vacation and holiday allowances, and contributions to pension or welfare funds are not included.

Another important date is January 25, 1951. In determining increases made since the 1950 cutoff date that must be offset against the 10% permissible increase, only general wage (and salary) increases must be figured up to January 25, 1951. After that time, every increase must be computed, including such benefits as holidays, added vacation payments, overtime, bonuses, contributions to pension and welfare plans, etc.

Separate standards have been worked out for granting increases to individuals by employers with rate ranges, single rates and diverse or "random" rates. Where the wage structure is built on rate ranges, raises may be based on past practice, a 6% option, or an established plan. In no case must adjustments bring any employee to a rate higher than the established maximum.

Where a diversity of rates is paid, increases may be granted without prior approval for groups of 30 or less in plants with fewer than 75 employees. Informal rate ranges may be set up by grouping jobs similar in content, responsibility and skill. The lowest rate paid to an employee on the job on January 25, determines the minimum, with the maximum not more than 25% higher. Individual increases may then be granted on much the same basis as for plants with established ranges, according to past practice or the 6% option.

When an employee is assigned added work, or new duties and responsibilities, he may be given a pay boost without prior Board approval. Of course, the new work must be substantial and bona fide.

The distinction between general and individual increases is important. Both types may be given at the same time, to the same employees, under the proper conditions. The general increase is limited by the 10% ceiling. No percentage maximum is figured for the merit or length of service boosts, but they must be kept within limits determined by the average amount of 1950 increases and the top rate for a job.

Top management is foreclosed from merit and length of service increases, on the theory that there is no minimum or maximum rate for such a position, and that no one in the firm does comparable work. So, increases for these individuals must come within the 10% limit prescribed for a general increase, if granted without prior WSB or SSB approval.

For the purpose of computing general wage increases and levels, the appropriate unit could be composed of all employees in a bargaining unit, in a plant, a company, or an industry, "as best adapted to preserve contractual or historical relationships." The appropriate unit for measuring changes in *salary* levels is a plant or major business division, or a recognized collective bargaining unit. Separate treatment must be accorded to those who qualify as executive, administrative, professional or outside sales personnel.

Differences in employer past practice could result in different units being appropriate for applying general and individual increases. To establish an historical relationship for the merit and length of service increases, the employer must have applied uniform standards and techniques to, and correlated amounts of, such boosts for the entire group. The

restriction relating to separate treatment of exempt and non-exempt salaried employees need not be followed in settling the unit appropriate for individual increases.

A policy for approving changes in fringe payments, outside of the ceiling imposed by the general increase formula, has been set in motion by the wage boards. For the time being, four benefits only will be keyed to industry and area practice. These are (a) paid holidays, (b) paid vacations, (c) call-in pay, and (d) premium pay related to days or hours of work.

Other adjustments of this type are expected to be permitted in the future. At present, all other fringe increases must be offset against the permissible general increase. Any discretionary bonus, applicable to the period after 1/25/51, must receive prior approval; new or extended pension or profit-sharing programs must be approved; safety and suggestion awards must be approved if they exceed the 10% permitted.

NEW JOBS, NEW PLANTS

The new plant, new job or new employee create problems in any stabilization scheme. Early efforts have concentrated on establishing a frame of reference that will prevent the new worker or new factory from upsetting established plant or area relationships. Criteria have been set up for new plants opened by an existing enterprise in the same labor market area and in a different market area. Rates are to be based on the same or a comparable industry in the local labor market area, or the same industry in the most nearly comparable labor market area.

Procedural requirements under the wage and salary regulations are fairly simple. Form WS-1 is provided for those who are in doubt whether an increase may be put into effect without prior approval. The title suggests its purpose: "REQUEST FOR A RULING UNDER THE REGULATIONS OF THE WAGE STABILIZATION BOARD." This form is filed with the nearest Wage and Hour Division of the Labor Department.

If a general increase is granted, it must be reported on Form WS-6a within 10 days after the increase takes effect. For employees covered by the Wage Stabilization Board, the report is sent to the Wage and Hour Division; the report on executive, administrative, professional and outside sales personnel is sent directly to the Board.

An application for a substitute base pay period or base level is filed on Form WS-6b with the division.

No reports are required when individual merit, promotion or length of service increases are granted. However, these must be recorded in a manner that will make them available for inspection. The same applies to wages paid to new employees.

PROFESSIONAL NOTICES

CAREER POSITIONS
For Industrial Engineers
and
Industrial Relations Men
GEORGE A. SHANNON
Agency
11 WEST 42nd ST., N. Y. C. CH. 4-6576

GRIFFENHAGEN & ASSOCIATES
Established in 1911
CONSULTANTS IN MANAGEMENT
Advice and technical assistance on problems of policy, organization, procedure, personnel, and finance.
Chicago New York Boston
Washington Milwaukee Los Angeles

PHIL CARROLL
Registered Professional Engineer
MAPLEWOOD, N. J.

BRUCE PAYNE and ASSOCIATES Inc.
WESTPORT 1, CONN.
BOSTON 16, MASS.
CHICAGO 1, ILL.
ATLANTA 5, GA.
MANAGEMENT CONSULTANTS

GEORGE H. ELLIOTT and Company
CONSULTING MANAGEMENT ENGINEERS
521 Fifth Avenue, N. Y. 17 • MU 7-5768

LOUIS J. KROEGER AND ASSOCIATES
Serving Business and Government
Organization and Procedure Analysts
Personnel Specialists
507 James Oviatt Building, Los Angeles
785 Market Street, San Francisco

EDWARDS & BARNES
Management Engineers
FIRST NATIONAL BANK BUILDING
PITTSBURGH, PENNSYLVANIA

HOTEL ESSEX HOUSE
1050 Broad Street at Lincoln Park
Newark, N. J.
A. C. Allan General Manager
Largest and Most Complete Catering, Banquet, Ballroom, and Meeting Facilities
"Where the Northern New Jersey S.A.M. Chapter Meets"
Home of THE "CAROUSEL"
Newark's most beautiful Cocktail Lounge and Supper Club
For inquiries and reservations
Telephone MItchell 2-4400

Detail of Industries and Functional Positions

MEN IN VIRTUALLY ALL levels of management and in industries which run in a 98-classification listing form the bulk of the Society for Advancement of Management's membership.

The list of industries, in which basic manufacturing predominates, runs from Agricultural Equipment manufacturing to Wirework.

The detail of functional positions occupied by SAM members is as follows:

Corporate officers and special assistants, from the rank of Chairman of the Board to Assistant to the Vice President number 814. The breakdown is as follows: Chairmen of the Board, 10; Owners, 58; Partners, 82; Presidents, 206; Vice-Presidents of Production and Manufacturing, 43; Vice-Presidents of Industrial Relations, 16; Vice-Presidents of Engineering, 6; Vice-Presidents of Sales, 10; Executive Vice-Presidents, 200; Executive Assistants, 15; Assistants to Presidents, 30; Assistants to Vice-Presidents, 37; Secretaries, 50; Treasurers, 51 — Total, 814.

General Managers and Division Managers total 832. The detailed breakdown follows: General Managers, 94; Managers, 45; Business Managers and Business Representatives, 13; Division Managers, 55; Factory Managers, 39; Industrial Engineering Managers and Supervisors, 77; Merchandising Managers, 2; Office Managers, 22; Operations Managers, 10; Parts Manager, 1; Planning and Standards Managers, 43; Plant Managers, 81; Production Control Managers, 122; Production Service Managers, 11; Regional Managers, 17; Sales Managers, 22; Works and Works Staff Managers, 46; Other Managers, 53; General Superintendents, 38; Building Superintendents, 3; Plant Superintendents, 38 — Total 832.

Production, Administrative, Industrial Relations and other directors number 485, in the following detailed breakdown: Administrative Service Directors, 12; Directors of Industrial Relations, Employee, Labor, Human Relations and Personnel Managers, 340; Managing Directors, 29; Production Directors, 14; Directors of Purchasing, Purchasing Agents, 20; Directors of Quality Control, 11; Directors of Research, Production Research Managers, 26; Directors of Statistical Control and Market Research, 3; Technical Directors, 8; Directors of Work Simplification, 12 — Total, 485.

General Supervisors and department heads of Supervisor rank total 359. The breakdown is as follows: Cost Control Supervisors, 21; General Supervisors, 19; Inventories Supervisors, 4; Material Control Supervisors, 8; Methods and Procedures Supervisors, 48; Production Supervisors, 7; Records Supervisors, 2; Sales Supervisors, 6; Staff Supervisors, 13; Supervisors of Standards and Time Study, 116; Organization, Methods and Procedures Analysts, 115 — Total, 359.

Chief Industrial Engineers, Consulting Engineers, Staff Assistants and Management Consultants number 1685, as follows: Chief Industrial Engineers, 146; Consulting Engineers, 52; Industrial Engineers, 934; Other Engineers, 87; Staff Assistants, 323; Consultants, 143 — Total, 1685.

Financial officers, including Controllers and Budget Directors number 173. The number of members in each classification within this group is as follows: Controllers, 72; Budget Directors, 22; CPAs, Auditors, Accountants, 79 — Total, 173.

The balance of the listing of S.A.M. membership by functional positions adds 766 to the total. The detailed breakdown is as follows: Dean, Department Chairman and Professor in Business Administration, Industrial Engineering and Social Sciences, 319; Credit Man, 1; Retail Buyer, 1; Industrial Relations Assistants, 3; Executive Secretaries (Trade Association), 4; Bank Officers, 18; Attorneys, 16; Government Employees, 115; Editors, 5; Advertising and Sales Promotion Assistants, Production Control and Planning Assistants, 18; Personnel Research Assistants, 44; Quality Control Assistants, 5; Wage Incentives Assistants, 4; Public Relations Assistants, 4; Statisticians, 5; Arbitrators, 12; Research Chemists, 3; Superintendents (Unclassified), 96; Repairman, Miscellaneous, 81; Retired, 12 — Total, 766.

The list of industries represented by firm and individual membership is as follows:

Agriculture equipment - 24
Aircraft manufacturing - 55
Alcohol distilling - 42
Aluminum products - 39
Animal and vegetable oils - 5
Automotive, including parts - 75
Bakery products - 13
Balances & scales - 3
Banking - 36
Boilermaking - 1
Boot & shoe mfg. - 11
Brick, tile & non-clay refractories - 9
Business service - 142
Canning & preserving - 1
Carpet & rug - 25
Cereal preparation - 2
Chemical and chemical products - 173
Chocolate & Cocoa products - 8
Cleaning and polishing products - 8
Cleaning, dyeing, pressing, laundry - 19
Clocks & watches - 18
Coal mining - 5
Coffee, tea & spices - 2
Compressed & liquefied gases - 2
Construction - 49
Consultant - 408
Cork products - 30
Cutlery & tools - 24
Drugs, toiletries, medicines - 116
Dairy products - 25
Education - 341
Electrical equipment - 284
Electroplating - 3
Engine & turbine mfg. & assemblying - 12
Fabricated plastic products - 33
Food preparation - 59
Forging - 55
Foundry - 49
Furniture - 34
Garment mfg. - 116
Government service - 281
Grain & feed milling - 5

Grease & tallow - 1
Hardware - 26
Heating apparatus - 49
Instruments & apparatus - 60
Insurance - 45
Iron & Steel - 142
Leather & leather products - 12
Lighting fixtures - 20
Linoleum - 7
Lumber & wood products - 34
Machine mfg. (machine shop) - 419
Machine tools & accessories - 47
Mattress & bedspring - 10
Meatpacking - 16
Metal mining - 13
Motion pictures - 1
Motor vehicle mfg. - 73
Nails, spikes & allied mfg. - 3
Non-ferrous metal smelting & refining - 14
Nut, bolt, washer, screw - 16
Office machines & typewriters - 47
Oil refining - 56
Optical goods - 12
Ordnance, ammunition, explosives - 19
Paint & varnish - 22
Paper & allied products - 132
Paving & roofing materials - 1
Petroleum and coal products - 57
Photo apparatus - 13
Plastics materials - 18
Plumbers supplies - 7
Printing & publishing - 116
Radio mfg. - 53
Railroad locomotive & car mfg. - 7
Rayon & allied products - 35
Refrigeration & air conditioning - 25
Retail trade - 94
Rubber products - 54
Sheet metal - 96
Shipbuilding - 9
Soap & glycerin - 13
Stamped & enameled ware - 4
Stone, clay & glass products - 88
Textile mfg. - 181
Tin & tinware - 23
Tobacco - 16
Transportation (air, rail, motor & water) - 37
Utilities - 90
Wallboard & insulation - 1
Wholesale trade - 26
Wirework - 19
Research - 38
Hotel - 8
Hospital - 13
Retired - 12

Bestsellers All!

Reprints of the most talked-about current and recent ADVANCED MANAGEMENT articles are now available

YOUR CHOICE — 5 for $1
OR THE ENTIRE 18 - for only $3

Each article on this list has been reprinted — some several times — in response to steady demands for copies from Management Men all over the world

51. **Keynote for Management-Industry Partnership,** by Thomas H. Carroll, Dean, School of Business Administration, University of North Carolina.
52. **Simplified Incentives for Multiple Production,** by W. Dale Jones, School of Industrial Engineering, Georgia Institute of Technology.
53. **Setting Cost Reduction Goals,** by Elliott I. Petersen, Vice President for Manufacturing, Bigelow-Sanford Carpet Co., Inc.
54. **Profit-Sharing — The Importance of Being Important Together,** by Clarence A. Wimpfheimer, President, American Velvet Company.
55. **Executive Development Through Colleges and Universities,** by Earl G. Planty, Executive Counselor, Johnson & Johnson; Dr. C. K. Beach, Professor of Industrial Education, Cornell University and Gordon Van Ark, Division Manager, Personnel Development, General Foods Corporation.
56. **Communications—What Are Employees Really Interested In,** by Peter F. Drucker, Industrial Economist.
57. **What Makes Successful and Unsuccessful Executives?** By Burleigh B. Gardner, Executive Director, Social Research, Inc., Chicago.
58. **Human Relations in Industry: A Challenge for Free Enterprise, "Industrial Relations and the Social Psychologist."** By Dr. Douglas McGregor, President, Antioch College.
59. **Resistance to Change — Its Analysis and Prevention,** by Alvin Zander, Research Center for Group Dynamics, University of Michigan.
60. **Line and Staff—Their Roles in the Organization Structure,** by J. K. Louden, Vice President, York Corporation.
61. **Wartime Lessons in Wage Administration,** by Canby Balderston, Dean, Wharton School of Finance and Commerce, University of Pennsylvania, and Former Assistant Chief, Civilian Personnel Branch, Industrial Personnel Division, Army Service Forces.
62. **The Industrial Use of Personality Tests,** by William E. Henry, Department of Psychology and Committee on Human Development, University of Chicago, and Harriett B. Moore, Social Research, Inc.
63. **Staff Organization for Control,** by J. K. Louden, Vice President, York Corp.
64. **Efficient Planning for Budgeting,** by Charles C. James, Associate Counsellor, Stevenson, Jordan and Harrison.
65. **Budget Navigation by Dead Reckoning,** by Alwyn M. Hartogensis, Ebasco Services, Inc.
66. **Democratic Principles in Business Management,** by James C. Worthy, Sears, Roebuck and Company.
67. **Creative Leadership,** by Alfred H. Williams, President, Federal Reserve Bank of Philadelphia.
68. **Personalities in Labor-Management Conflicts,** by A. A. Imberman, Imberman & De Forest.

Order Coupon

SOCIETY FOR ADVANCEMENT OF MANAGEMENT
84 William Street - New York 38, N. Y.

Please send ..... copies of the following reprints:
Numbers ....., ..., ..., ..., ..., ..., ..., ..., ..., ...
at 25 cents each — or Five for $1
..... Put a check mark here to order
THE FULL SET OF 18 REPRINTS for $3
Enclosed find check (or money order) for $.....
Name .....
Address .....
.....
I am a member of S.A.M. .....